SECOND OPERABLE UNIT
REMEDIAL INVESTIGATION REPORT
SYOSSET LANDFILL
SYOSSET, NEW YORK

December 1995

Prepared for

Town of Oyster Bay
Department of Public Works
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Syosset, New York 11791

Prepared by

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January 25, 1996

Geraghty & Miller, Inc. prepared this report as a subconsultant to Lockwood, Kessler & Bartlett, Inc. and is submitting this report to the Town of Oyster Bay Department of Public Works for work performed at the Syosset Landfill, Syosset, New York. The report was prepared in conformance with Geraghty & Miller's strict quality assurance/quality control procedures to ensure that the report meets industry standards in terms of the methods used and the information presented. If you have any questions or comments concerning this report, please contact one of the individuals listed below.

Respectfully submitted

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EXECUTIVE SUMMARY

Geraghty & Miller, Inc. was retained by the firm of Lockwood, Kessler & Bartlett, Inc., (LKB), under contract to the Town of Oyster Bay (Town), Syosset, New York, to conduct the Second Operable Unit (OU-2) Remedial Investigation (RI) of the Syosset municipal landfill site (Syosset Landfill) in Syosset, New York. The OU-2 RI focussed on the potential off-site environmental impacts of the Syosset Landfill, whereas the Interim, or First Operable Unit (OU-1) RI focussed on on-site environmental impacts from the Syosset Landfill.

The Syosset Landfill is located in central Nassau County in the Town of Oyster Bay, Syosset, New York. The site is rectangular in shape and encompasses approximately 38 acres. The offices and facilities of the Town of Oyster Bay Department of Public Works are located adjacent to the landfill to the east and occupy approximately 15 acres. The Town controls access to the site, and the entire landfill area is enclosed by a 6-foot high cyclone fence. The site is bounded by the Long Island Expressway and Miller Place to the southeast, Cerro Wire & Cable Corporation to the southwest, and the Long Island Railroad (LIRR) to the northwest. A residential area and the South Grove Elementary School border the site to the northeast. Topographically, the site is relatively flat and at a similar elevation to the surrounding area.

The OU-2 RI was conducted from October 1992 to March 1994 and consisted of an Off-Site Groundwater Study and an Off-Site Subsurface Gas Study. During the OU-1 RI, leachate-impacted groundwater was detected beneath the Syosset Landfill at the northern (downgradient) property boundary and elevated concentrations of methane were detected at the southwestern part of the landfill. The purposes of the Off-Site Groundwater Study were to determine the off-site extent of a leachate plume that may be emanating from the landfill, confirm the direction of groundwater flow, and determine the plume thickness. The purpose of the Off-Site Subsurface Gas Study was to determine the extent of off-site subsurface gas migration from the landfill.

The scope of work for conducting the Off-Site Groundwater Study and Off-Site Subsurface Gas Study included the following:

- Installation of nine monitoring wells at four locations (three locations off-site [eight wells] and one location on-site [one well]).
- Measurement of water levels in 18 Nassau County observation wells in the vicinity of the Syosset Landfill.
- Performance of two rounds of water-level measurements in site monitoring wells before each of the two groundwater sampling rounds.
- Collection of two rounds of groundwater samples from nine new monitoring wells and 12 preexisting on-site monitoring wells. Samples were analyzed for VOCs, metals (total and dissolved), and leachate indicator parameters.
- Installation of three new off-site subsurface gas monitoring wells.
- Collection of data from the three new off-site and four preexisting on-site gas monitoring wells during 3 days of relatively low or falling barometric pressure.

In addition to the scope of work described above, five new on-site gas monitoring well clusters (two wells per cluster) were installed and monitored as part of the OU-1 Remedial Design Program, which was conducted concurrently with the OU-2 RI.

The Syosset Landfill is underlain by more than 1,000 feet of unconsolidated deposits of sand, silt, gravel, and clay, which rest unconformably on Precambrian bedrock. The unconsolidated deposits are separated into three formations: the Upper Glacial Formation (top), the Magothy Formation (middle), and the Raritan Formation (bottom). At the Syosset Landfill site, the Magothy Formation is the most significant in terms of potential contaminant migration in groundwater. The Upper Glacial Formation is completely unsaturated (dry) beneath the site; the Lloyd Sand Member of the Raritan Formation is separated from the Magothy Formation by the Raritan Clay, which is approximately 160 feet thick, and, in addition, the Lloyd Sand Member lies at too great a depth to be considered as a potential contaminant migration pathway. Site monitoring wells tap or screen three zones (shallow, intermediate, and deep) of the Magothy Formation. Wells screened in the intermediate zone include on-site "deep" wells installed during the OU-1 RI (and considered intermediate for the purposes of the OU-2 RI) and intermediate wells installed during the OU-2 RI.

Hydrogeologic conditions encountered during the OU-2 RI are generally consistent with the OU-1 RI and published data. The regional potentiometric surface map of the shallow zone of the Magothy Formation indicates that the position and orientation of the regional groundwater divide is virtually the same as it was during the OU-1 RI and is south of the landfill. Regional shallow groundwater flow was documented to be in a north-northeasterly direction near the site and is also consistent with the OU-1 RI findings. The site-specific horizontal direction of groundwater flow in the shallow, intermediate, and deep zones of the Magothy Formation is generally to the north. However, in the shallow zone on-site, groundwater also flows from the west and east parts of the site toward the center of the landfill before moving north toward the Town park. The direction of the vertical hydraulic gradient is predominately downward in the study area. The vertical hydraulic gradient is approximately four times steeper than the horizontal hydraulic gradient; this is consistent with the proximity of the site to the regional groundwater divide.

Based on leachate indicator concentrations and metals concentrations, landfill-impacted groundwater has migrated to two of the three off-site well cluster locations (Town park and Roadway property); however, the recharge basin location apparently does not show landfill impacts based on these parameters. The greatest impacts off-site are in the intermediate zone of the Magothy Formation. The significantly steeper vertical hydraulic gradient, as compared to the horizontal gradient, has resulted in landfill-derived contaminants moving off-site into the intermediate zone (Wells PK-10I and

RW-12I). The total concentrations of VOCs in off-site intermediate wells at the Town Park (PK-10I) and at the Recharge Basin (RB-11I) are consistent with the total VOC concentrations detected in the on-site shallow monitoring wells. These concentrations are also consistent with regional background degradation of groundwater quality. In particular, this is true for Well RB-11I, which is located outside the easternmost limiting groundwater flowline from the landfill. The total concentration of VOCs in RW-12I is anomalously high, several times higher than the concentrations encountered in any other monitoring well during either the on-site or off-site RIs. The high concentrations of volatile organic compounds (particularly PCE and TCA) in Well RW-12I appear to be from a source(s) located in the Industrial Park west of the LIRR tracks. This conclusion is based on the fact that RW-12I is located hydraulically downgradient of the westernmost edge of the landfill and is located hydraulically downgradient of, and adjacent to, an industrial area located west of the LIRR tracks. This conclusion is further supported by the lack of degradation of PCE and TCA in Well RW-12I; the identification of properties within the previously unsewered Industrial Park who used and/or are using PCE and TCA and have had reported releases; regional hydrogeologic data indicating the Industrial Park is upgradient of Well RW-12I; and the low levels of these compounds found on-site in both the soil and groundwater during the OU1 RI.

Landfill gas (primarily methane) was detected in one of the gas wells on the southwestern part of the landfill and is consistent with the findings of the OU-1 RI. Landfill gas was not detected in the three new off-site subsurface gas monitoring wells and does not appear to be migrating off-site. (See ppendix K for the results of gas monitoring conducted separately by LKB as part of the OU-1 Remedial Design Program.)

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1.0 INTRODUCTION

Geraghty & Miller, Inc. was retained by the firm of Lockwood, Kessler & Bartlett, Inc. (LKB), under contract to the Town of Oyster Bay (Town), Syosset, New York, to conduct the Second Operable Unit (OU-2) Remedial Investigation (RI) of the Syosset municipal landfill site (Syosset Landfill) in Syosset, New York (Figure 1-1). The OU-2 RI focused on the potential off-site environmental impacts of the Syosset Landfill. LKB provided overall project management for the OU-2 RI, and will provide the engineering services necessary to complete the Feasibility Study (FS) portion of the OU-2 Remedial Investigation/Feasibility Study (RI/FS) process for the Syosset Landfill site, if required. The OU-2 RI was performed in accordance with the protocols and methodologies detailed in the Site Operations Plan (SOP) (Geraghty & Miller, Inc. 1992), which was approved by the U.S. Environmental Protection Agency (USEPA) on May 15, 1992. The SOP was developed and prepared in accordance with the OU-2 RI Work Plan (Geraghty & Miller, Inc. 1991) to ensure that the RI would be completed in a manner consistent with the National Contingency Plan (NCP). This OU-2 RI Report describes the activities and findings of the OU-2 RI.

1.1 BACKGROUND

The Interim, or First Operable Unit (OU-1) RI, which was conducted from April 1987 to September 1989, focused on on-site environmental impacts from the Syosset Landfill. The OU-1 RI Report (Geraghty & Miller, Inc. 1989) contains extensive background information about the site and this information has been provided in Appendix L of this report for the reader's convenience. The FS portion of the OU-1 RI was conducted by LKB. The OU-1 RI/FS was officially completed in September 1990 when the USEPA issued the Record of Decision (ROD) for the site on September 27, 1990.

1.2 SITE DESCRIPTION

The Syosset Landfill is located in central Nassau County in the Town of Oyster Bay, Syosset, New York (Figure 1-1). The site is rectangular in shape and encompasses approximately 38 acres (see Figure 1-2). The offices and facilities of the Town of Oyster Bay Department of Public Works are located adjacent to the landfill to the east and occupy approximately 15 acres. The Town controls access to the site, and the entire landfill area is enclosed by a 6-foot high cyclone fence.

As shown on Figures 1-1 and 1-2, the site is bounded by the Long Island Expressway and Miller Place to the southeast, Cerro Wire & Cable Corporation to the southwest, and the Long Island Railroad (LIRR) to the northwest. A residential area and the South Grove Elementary School border the site to the northeast. Topographically, the site is relatively flat and at a similar elevation to the surrounding area.

Two basins owned by Nassau County border the site to the northeast and the north. Nassau County recharge basin RB-284 borders the site to the northeast and Nassau County storm-water basin SWB-571 borders the site to the north. Another Nassau County storm-water basin, SWB-218, is located about 700 feet northeast of RB-284. Storm-water runoff from the neighboring residential area collects in these basins and then the water either evaporates or recharges the underlying Magothy aquifer.

1.3 PURPOSE AND SCOPE

The OU-2 RI consisted of an Off-Site Groundwater Study and an Off-Site Subsurface Gas Study. During the OU-1 RI, leachate-impacted groundwater was detected beneath the Syosset Landfill at the northern (downgradient) property boundary and elevated concentrations of methane were detected at the southwestern part of the landfill. The purposes of the Off-Site Groundwater Study were to determine the off-site extent of a leachate plume that may be emanating from the landfill, confirm the direction of groundwater flow, and determine the plume thickness. The purpose of the

Off-Site Subsurface Gas Study was to determine the extent of off-site subsurface gas migration from the landfill.

The scope of work for conducting the Off-Site Groundwater Study and Off-Site Subsurface Gas Study included the following:

- Installation of nine monitoring wells at four locations (three locations off-site [eight wells] and one location on-site [one well]).
- Measurement of water levels in 18 Nassau County observation wells in the vicinity of the Syosset Landfill.
- Performance of two rounds of water-level measurements in site monitoring wells before each of the two groundwater sampling rounds.
- Collection of two rounds of groundwater samples from nine new monitoring wells and 12 preexisting on-site monitoring wells. Samples were analyzed for VOCs, metals (total and dissolved), and leachate indicator parameters.
- Installation of three new off-site subsurface gas monitoring wells.
- Collection of data from three new gas monitoring wells during 3 days of relatively low or falling barometric pressure.

In addition to the scope of work described above, five new on-site gas monitoring well clusters (two wells per cluster) were installed and monitored as part of the OU-1 Remedial Design Program, which was conducted concurrently with the OU-2 RI.

1.4 OVERVIEW OF SITE CONDITIONS

As previously stated, the OU-1 (Interim) RI was conducted to evaluate the on-site environmental impacts of the Syosset Landfill. The OU-1 RI consisted of three separate studies: the On-Site Groundwater Study, the Landfill Dimension Study, and the Subsurface Gas Study (on-site). Field work for the OU-1 RI began in April 1987 and was completed in June 1988; thereafter, landfill gas and water levels were monitored on a monthly basis until September 1989. The overall scope of work for the OU-1 RI consisted of the following field activities:

- Installation of nine groundwater monitoring wells to supplement six preexisting groundwater monitoring wells.
- Installation of 19 gas monitoring wells.
- Drilling of four borings through the fill.
- Collection and analysis of fill samples.
- Collection and analysis of groundwater samples.
- Collection and analysis of landfill gas samples.
- Pressure testing of gas monitoring wells.
- Monthly monitoring of landfill gas and groundwater levels.

The findings of the OU-1 RI are summarized below.

The Syosset Landfill is underlain by more than 1,000 feet of unconsolidated deposits of sand, silt, gravel, and clay, which rest unconformably on Precambrian bedrock. The unconsolidated deposits are separated into three formations: the Upper Glacial Formation (top), the Magothy Formation (middle), and the Raritan Formation (bottom). The upper 60 to 100 feet of unconsolidated sand and gravel deposits in the vicinity of the landfill comprises the Upper Glacial Formation. Before landfilling began, up to 90 feet of this formation was removed during sand mining at the site. The Magothy

Formation, which is comprised of finer sands, silts and clays directly underlies the Upper Glacial Formation and is in hydraulic connection with it. This formation (Magothy) was not fully penetrated during either the OU-1 or OU-2 RIs. However, based on published data, the Magothy Formation is approximately 540 feet thick beneath the site and may extend as deep as 630 feet below land surface. The Raritan Formation is the third, and deepest unconsolidated formation beneath the site and rests on the bedrock surface. Comprising this formation is the Raritan Clay Member, which is approximately 160 feet thick and occurs directly beneath the Magothy, and the Lloyd Sand Member, which is approximately 240 feet thick and rests on the bedrock surface more than 1,000 feet below land surface. At the Syosset Landfill site, the Magothy aquifer is the most significant in terms of potential contaminant migration in groundwater. The Upper Glacial Formation is completely unsaturated (dry) beneath the site; the Lloyd Sand Member of the Raritan Formation is separated from the Magothy aquifer by the Raritan Clay, which is approximately 160 feet thick, and, in addition, the Lloyd Sand Member lies at too great a depth to be considered as a potential contaminant migration pathway.

Water-level measurements were collected during the OU-1 RI on a regular basis in both on-site monitoring wells (installed under the direction of ERM and Geraghty & Miller) and off-site Nassau County monitoring wells. These data were used to prepare potentiometric surface maps that depicted the horizontal direction of groundwater flow regionally in the shallow zone of the Magothy aquifer and on-site in the shallow and "deep" zones of the Magothy aquifer. (These "deep" monitoring wells are considered intermediate depth monitoring wells for the purposes of the OU-2 RI.) As indicated on these maps, the dominant horizontal component of shallow groundwater flow was in a northeasterly direction in the Magothy aquifer at and in the vicinity of the site (with a more northerly groundwater flow direction in the "deep" zone at the site), and the regional groundwater divide was located south of the site. A comparison of the horizontal and vertical hydraulic gradients indicated that the vertical gradient is more pronounced than the horizontal gradient, thus confirming that the site is in a deep-flow recharge zone.

During the OU-1 RI, groundwater quality underneath and at the downgradient edge of the landfill was found to be impacted by leachate, as evidenced by elevated concentrations of indicator parameters (chloride, ammonia, alkalinity, hardness, total dissolved solids [TDS], specific conductance, iron, and ammonia). The concentrations and distribution of the leachate indicator parameters suggested the existence of an off-site plume of leachate-impacted groundwater. Although volatile organic compounds (VOCs) were detected in some groundwater monitoring wells, the concentrations were within a range detected in monitoring wells screened at similar depths in the Magothy Formation in other areas of Nassau County (Dvirka and Bartilucci Consulting Engineers 1986). Further, the distribution of VOCs was not consistent with a contiguous body (plume) of groundwater contamination with the landfill as the source.

The landfill consists of approximately 38 acres and appears to be divided into two lobes with the deepest lobe located in the western part of the site (with a maximum thickness of 90 feet) and the other lobe near the eastern part of the site (with a maximum thickness of 70 feet). These depths represent the most current information available and were determined during the OU-1 Remedial Design Program (Converse Consultants East, PC 1993). Detectable concentrations of VOCs, base/neutral extractable compounds, polychlorinated biphenyls (PCBs), and metals were found during the OU-1 RI in some samples of fill in a distribution indicative of random disposition of industrial, commercial, and residential waste.

The only available data on waste deposition at the site is provided in the ERM Northeast Report (ERM 1983). According to ERM (1983), from 1933 to 1967, the Syosset Landfill accepted the following types of waste: commercial, industrial, residential, demolition, agricultural, sludge, and ash. After 1967, the site accepted only industrial and scavenger cesspool waste until the site closed in 1975.

During the OU-1 RI, the concentrations of landfill gas were found to be consistently highest in the gas monitoring wells located along the long axis of the landfill and in the southwestern corner of the site. Landfill gas concentrations were lower in wells located along the northern, eastern, and southern boundaries of the site; frequently, concentrations of landfill gas were undetectable, or nearly so, at these boundary areas. Landfill gases did not appear to be migrating vertically upwards under significant (detectable) pressure and appeared to be limited in horizontal extent. VOCs were detected in samples of landfill gas, but not in consistent concentrations or distributions.

2.0 METHODOLOGY

In this section, the methodologies employed for conducting the Off-Site Groundwater Study and Off-Site Subsurface Gas Study are discussed. These methods were described in detail in the SOP (Geraghty & Miller 1992). Any variances from the SOP are discussed.

2.1 OFF-SITE GROUNDWATER STUDY

The Off-Site Groundwater Study was conducted to determine the off-site extent of a leachate plume that may be emanating from the landfill, confirm the direction of groundwater flow, and determine the plume thickness. During the off-site groundwater study, nine new monitoring wells were installed and two rounds of groundwater quality samples were collected from the nine new wells and from 12 of the 15 preexisting on-site wells.

Prior to commencing the drilling program, Delta constructed a decontamination (decon) pad near the center of the landfill. The decon pad was constructed of poured concrete with a sloped surface that funneled water to a drain. Drilling rigs and down-hole equipment (including drill casings and surface casings) were steam cleaned over the pad before and after drilling at each location. The drillers also staged supplies and equipment that was not being used near the decon pad and surrounded the area with a 3-foot high wire mesh fence.

Drill cuttings from each of the four drilling locations were disposed of at a designated location on-site. Disposal details are provided in Sections 2.1.1.1 (Air-Rotary Barber Method), 2.1.1.2 (Modified Mud-Rotary Method), and 2.1.1.3 (Hollow-Stem Auger Method).

The nine monitoring wells were installed at four locations by Delta Well & Pump Company, Inc. (Delta) of Ronkonkoma, New York, and their subcontractor, Catoh Inc. (Catoh) of Weedsport, New York. Eight of the wells (PK-10S, PK-10I, PK-10D, RB-11S, RB-11I, RB-11D, RW-12I, and RW-12D) were installed at three off-site locations and one well (SY-3DD) was installed at an on-site location. The locations of the nine new and 15 preexisting monitoring wells are shown on Figure 1-2.

A Geraghty & Miller field hydrogeologist was present during all drilling activities to ensure that the protocols specified in the SOP were followed. The field hydrogeologist's responsibilities included collecting and logging soil samples, monitoring drilling and decontamination operations, recording groundwater data, deciding on final drilling depths and screen intervals (in consultation with the Geraghty & Miller project manager and director, the USEPA, the Town, and LKB), preparing boring logs and well completion diagrams, and recording well installation procedures. The USEPA provided oversight at key points during the drilling program (e.g., steam cleaning, geophysical logging, setting the well) through their consultant Camp, Dresser & McKee, Inc. (CDM).

The SOP specified that 11 monitoring wells would be installed at five locations: two on-site locations (near Well Clusters SY-3 and SY-6) and three off-site locations (Nassau County Recharge Basin No. SWB-218, the Town Park, and Roadway Express, Inc. [Roadway]). At the on-site locations, a deep well was to be installed next to each of the two existing on-site monitoring wells; and three new wells (shallow, intermediate, and deep) were to be installed at each off-site location. However, during a meeting held on February 18, 1993 with the USEPA, the Town, LKB, and Geraghty & Miller, it was agreed that two of the 11 monitoring wells would be deleted from the drilling program. The two wells to be deleted were the shallow well proposed at the Roadway property (RW-12S) and the deep upgradient well proposed adjacent to existing Monitoring Well Cluster SY-6 (SY-6DD). The reasons for these deletions are given below.

Monitoring Well RW-12S was deleted from the drilling program at the suggestion of the USEPA with the concurrence of the Town, LKB, and Geraghty & Miller. This decision was made during the February 18, 1993 meeting based on a review of the OU-1 RI potentiometric surface maps which indicated that the groundwater flow direction was more easterly in the shallow zone of the Magothy than the flow direction observed in the "deep" zone of the Magothy aquifer. Therefore, the consensus at the meeting was that a shallow well was not needed at this location (Roadway). Monitoring Well SY-6DD was deleted from the drilling program because the analytical results of the groundwater samples collected for leachate indicator testing during the drilling of Exploratory Boring SY-3DD indicated that the highest leachate concentrations were detected at a depth that correlates with the screen zone of the existing "deep" well at Monitoring Well Cluster SY-6. Therefore, this existing "deep" well was judged to be a suitable upgradient monitoring well.

During the February 18, 1993 meeting, a decision was also made to collect groundwater samples from Well PK-10I (located at the Town Park) immediately following installation to determine the presence/absence of VOCs. Well PK-10I was selected for sampling as it monitors the vertical interval of the aquifer containing the highest concentrations of leachate indicator parameters; if VOCs were present off-site, they would likely be detected in this part of the aquifer. The purpose of sampling Well PK-10I in advance of the scheduled groundwater sampling rounds was to reevaluate the number and locations of monitoring wells for the drilling program based on whether VOCs were present and at what concentrations. Samples were collected on May 4, 1993, but the well had to be resampled on June 2, 1993 because data validation indicated a laboratory quality control problem. The June results were also validated and were judged acceptable; however, the data were inconclusive because although VOCs were detected, they were found at relatively low concentrations. Therefore, on July 16, 1993, another meeting was held with the USEPA, the Town, LKB, and Geraghty & Miller and it was agreed that the drilling program should be continued as specified in the SOP. On July 26, 1993, drilling resumed at Nassau County Storm-Water Basin No. SWB-218.

2.1.1 <u>Drilling Methods</u>

Three drilling methods were employed during the Off-Site Groundwater Study: (1) the air-rotary (Barber) method, (2) the modified mud-rotary method, and (3) the hollow-stem auger method. The air-rotary method was used for drilling the two exploratory borings and installing a deep well at these locations, as well as for installing 10-inch diameter surface casings for three of the six borings drilled by the modified mud-rotary method. The modified mud-rotary method was used to drill and install the remaining wells except for one of the two shallow wells, which was installed by the hollow-stem auger method.

The Town obtained permission from Nassau County and Gordon Floral Realty, Inc. (Gordon) to drill and install off-site monitoring wells at Nassau County Recharge Basin No. SWB-218 (Wells RB-11S, RB-11I, and RB-11D) and the property leased by Roadway (Wells RW-12I and RW-12D). A security guard was supplied by Delta to ensure public safety at these two off-site drilling locations, as well as at the Town park, the third off-site drilling location. The security guard arrived on-site at the end of each work day before the drillers left the site and did not leave until the drillers returned the following day. Round-the-clock security coverage was also provided on the weekends and holidays. Thus, each drilling site was monitored continuously until work was completed and safe site conditions were restored at each off-site drilling location. In addition, a temporary fence was placed around each active off-site drilling site and signs were posted to warn the public of the on-going work. After the monitoring wells were installed at the three off-site drilling sites, the sites were restored to their original condition to the extent practicable.

At the February 18, 1993 meeting, "Greenstuff," an environmental lubricant, was approved by the USEPA for lubricating the drill rods. Hydrant water was used by the drillers to maintain hydraulic head in well borings to suppress sand heave, to mix drilling mud and grout, and for steam cleaning. Samples of this hydrant water were periodically collected by the Geraghty & Miller field hydrogeologist for analysis of VOCs to monitor the quality of water being used during the drilling process. Samples were sent to EcoTest Laboratories, Inc. (EcoTest) of North Babylon, New York for analysis by USEPA Method 601. VOCs were not detected in any of the hydrant water samples collected.

The three drilling methods used to install the nine monitoring wells are briefly described in the following sections, and detailed information on problems that were encountered in the field or variances to the SOP protocols is provided. A detailed description of the drilling methods can be found in the SOP.

2.1.1.1 Air-Rotary (Barber) Method

The air-rotary drilling method (Barber rig) was used to drill the two exploratory borings (SY-3DD and PK-10D) and to install deep monitoring wells in each of them. As previously stated, this method was also used to install surface casings for three of the six monitoring well borings drilled by the modified mud-rotary method.

2.1.1.1.1 Exploratory Borings

The purpose of drilling the two exploratory borings was to provide on-site and off-site vertical characterization of water quality and lithology. The air-rotary drilling method was selected for this task because representative groundwater and lithologic samples can be collected using this method (see the OU-2 RI Work Plan for the rationale for using this method). The water-quality and lithologic data collected from the exploratory borings were used to determine the depths of the monitoring wells and screen settings. Details on the criteria used to terminate the exploratory borings are provided in Section 2.1.4 (Termination Depths of Exploratory Borings), and details on field testing for leachate indicators are provided in Section 2.1.3 (Field Testing for Leachate Indicators). Drilling of the two exploratory borings was performed by Catoh, Delta's subcontractor.

From November 9, 1992 to December 1, 1992, Catoh drilled the first on-site exploratory boring (SY-3DD) next to existing Monitoring Well Cluster SY-3 to a depth of 540 feet below land surface (see Figure 1-2). During a site meeting on October 30, 1992 between representatives of the USEPA and Geraghty & Miller, it was agreed that the location of this boring would be moved approximately 50 feet west of the originally proposed location to minimize noise levels for residents living adjacent to the landfill.

Boring SY-3DD was advanced by rotating successively smaller diameter steel casings to the termination depth. Catoh started drilling with a 16-inch diameter casing until it could not be advanced further because of frictional resistance. The next casing was 10 inches in diameter and was inserted to the bottom of the 16-inch diameter casing (i.e., the bottom of the boring); drilling then continued until the 10-inch diameter casing could not be advanced further because of frictional resistance. This process was repeated using 8-inch diameter casing, followed by 6-inch diameter casing, until the termination depth was reached. The SOP had specified starting with 14-inch diameter steel casing, but this size was not available when the drilling began.

After each 20-foot section of casing was advanced and another section of casing had been welded to the length of casings in the boring, the cuttings from inside the casing were removed using compressed air from the drill rig. However, beyond a depth of approximately 300 feet, extremely fine-grained sand from the formation began heaving inside the casing, and water from a hydrant located on Gordon Drive had to be used to wash the sand heave out of the boring. This was accomplished by pumping the water through the drill rods as the bit was lowered back into the bottom of the boring, washing out the sand heave in the process.

Because of the resistance encountered during the drilling of SY-3DD, the 8-inch diameter casing could not be advanced to the termination depth (540 feet). Therefore, the boring was completed using 6-inch diameter casing in accordance with the SOP, and a 2-inch diameter well was installed in SY-3DD with the approval of the USEPA.

From December 9 to 31, 1992, the off-site exploratory boring (PK-10D) at the Town Park was drilled. Drilling proceeded smoothly at this location, sand heaving was more easily controlled, and Catoh was able to advance the 8-inch diameter casing to completion depth (499 feet) by flushing out the boring after each 20-foot section of drill casing had been installed. Boring PK-10D was completed as a 4-inch diameter well.

The cuttings for both borings were stored in pits next to each boring. After each boring was completed, Delta removed the cuttings from the pits and disposed of them at a designated location at the landfill. The native soil originally removed to create the pits was used to refill them, but clean fill was needed to supplement the native soil to fill the pit for PK-10D.

2.1.1.1.2 Surface Casings

The Barber rig was also used to install 10-inch diameter, black-steel, surface casings for three of the six well borings (PK-10S, RB-11I, and RB-11D) that were drilled by the modified mud-rotary method. This work was performed by Catoh before Delta began mud-rotary drilling to prevent the loss of drilling mud to the permeable coarse sand and gravel deposits that extend from land surface to a depth of approximately 140 feet. The Barber rig was not used to install the surface casings for the two mud-rotary borings (RW-12I and RW-12D) at the Roadway property because an access agreement for drilling had not been executed between the Town and the property owner (Gordon) before Catoh demobilized their rig and equipment from the site. In addition, PK-10I needed to be relocated (following Catoh's departure) due to problems at the original drilling site for this boring/well (see Section 2.1.1.2 [Modified Mud Method]). Therefore, with the approval of the USEPA, the surface casings for these three borings/wells were installed using a combination of two drilling methods: hollow-stem auger and cable tool. Delta subcontracted United Well and Pump Corporation (United), Bohemia, New York to perform the cable tool drilling for PK-10I, while Delta performed the cable tool drilling for RW-12I, RW-12D and also the hollow-stem auger drilling at all three of these locations. The hollow-stem auger rig was used to advance 12-inch inside diameter augers as deep as possible (approximately 50 feet). Then, the cable tool rig was used to install and advance 10-inch diameter surface casing through the auger flights as far as possible (approximately 107 feet for Well RW-12I, 105 feet for Well RW-12D, and 128 feet for Well PK-10I). This combination of techniques effectively cased-off the upper permeable deposits at these three boring/well locations.

Catoh also installed a 10-inch diameter surface casing next to existing upgradient Well Cluster SY-6; this casing was for the deep well (SY-6DD) that was to be drilled by the modified mud-rotary method at this location. However, as discussed in Section 2.1 (Off-Site Groundwater Study), Well SY-6DD was deleted from the drilling program since existing Well SY-6D could serve the same purpose which was to monitor the deep zone upgradient of the landfill. Delta sealed the surface casing at this location using a tremie pipe to pump cement/bentonite grout from the bottom of the casing to land surface and also welded a steel plate over the top of the casing.

2.1.1.2 Modified Mud-Rotary Method

The modified mud-rotary drilling method was used to drill six of the nine well borings during the OU-2 RI (PK-10S, PK-10I, RB-11I, RB-11D, RW-12I, and RW-12D). This work was performed by Delta, the prime drilling contractor, using a Failing F-10 rig. The modified mud-rotary method consisted of drilling most of the well boring using the conventional mud-rotary drilling method and then converting to the reverse rotary method for the final 30 feet of drilling. The purpose for converting to the reverse rotary method was to avoid the formation of a mudcake on the borehole wall in the screen zone. The reverse rotary method uses potable water, instead of mud, as a drilling fluid. When the modified mud-rotary method is used, wells can be developed more easily.

The screen zones for the seven monitoring wells not drilled by the air-rotary method were preselected based on the water-quality and lithologic profiles (sample/core logs and geophysical logs) from the two exploratory borings (SY-3DD and PK-10D). These screen settings were proposed by Geraghty & Miller in a January 20, 1993 letter to LKB (Appendix A) and were subsequently approved by the USEPA. The proposed screen settings for the shallow, intermediate, and deep monitoring wells were 140 to 150 feet below land surface, 350 to 360 feet below land surface, and 490 to 500 feet below land surface, respectively. Refinements to the preselected screen zones were made at the Recharge Basin (Wells RB-11S and RB-11D) based on the geophysical logs obtained from the deep boring at this location (see Section 2.1.5 [Geophysical Logging]).

Four of the five borings/wells originally proposed to be installed by the modified mud-rotary method were drilled as planned (RB-11I, RB-11D, RW-12I, and RW-12D). However, during the drilling of PK-10I at the Town Park on February 26, 1993, drilling mud circulation was lost at approximately 328 feet below land surface and could not be regained by mixing more mud or by thickening it. The well boring had collapsed by the following work day (March 1, 1993). Geraghty & Miller described the problems with Well Boring PK-10I in a March 11, 1993 letter to LKB (Appendix B); in this letter, Geraghty & Miller proposed to install the shallow well (PK-10S) at this location and to redrill the intermediate depth boring/well (PK-10I) approximately 100 feet further south. The original PK-10I well boring was subsequently redrilled by Delta (became PK-10S) with USEPA approval using the cable tool method.

PK-10I was drilled at the proposed alternate location approximately 100 feet south of the original location. As stated in Section 2.1.1.2 (Surface Casings), the surface casing for the PK-10I replacement boring/well was installed using a combination of the hollow-stem auger method by Delta and the cable-tool method by United.

Drilling mud consisted of polymer-free, 100 percent bentonite mixed with potable hydrant water in portable, prefabricated metal bins. After the mud-rotary part of the drilling had been completed, the mud was flushed out of the hole using potable water and was pumped to a tanker truck that disposed of the drilling mud/cuttings at a designated location at the landfill. Once all the mud was removed, Delta employed the reverse rotary method to complete the final 30 feet of drilling before the borehole was geophysically logged.

2.1.1.3 Hollow-Stem Auger Method

Well Boring RB-11S at the Recharge Basin was the only well boring drilled using the hollow-stem auger method. Delta used the same rig (Failing F-10) for the auger method as for the modified mud-rotary method. The SOP had specified that three shallow monitoring wells were to be installed at the Town Park, the Recharge Basin, and the Roadway property. However, as previously discussed, the shallow well at the Roadway property (RW-12S) was deleted from the drilling program and the shallow well at the Town Park (PK-10S) was installed in the original PK-10I well boring, which had been drilled by the mud rotary method and then collapsed.

2.1.2 Formation Sampling

Formation samples were collected from the deep well borings at each of the four drilling locations (SY-3DD, PK-10D, RB-11D, and RW-12D). For the two exploratory borings (SY-3DD and PK-10D) drilled by the air-rotary method, the Geraghty & Miller field hydrogeologist examined cuttings from the well boring on a semi-continuous basis to record the lithology. For the two deep borings drilled by the mud-rotary method (RB-11D and RW-12D), split-spoon samplers were used to collect formation samples at 20-foot intervals, and flume samples were also examined by the Geraghty & Miller field hydrogeologist on a semicontinuous basis to monitor for changes in lithology. Descriptions of the lithology were recorded on the sample/core logs provided in Appendix C.

2.1.3 Field Testing for Leachate Indicators

During drilling of the two exploratory borings (SY-3DD and PK-10D), groundwater samples were collected at 20-foot intervals and analyzed by the Geraghty & Miller field chemist for primary leachate indicators (hardness, alkalinity, ammonia) and also for secondary leachate indicators (pH, temperature, chloride, and specific conductance). The purpose of this work was to characterize the vertical water-quality profiles on-site and off-site so that the depths/screen settings for all the borings/wells could be determined. After each 20-foot section of drill casing had been installed, groundwater samples were collected with a bailer lowered through the drill rods or the annular space between the drill rods and drill casing. Samples were analyzed on-site by the Geraghty & Miller chemist.

As expected, groundwater samples that were collected from the exploratory borings were often turbid, and, as specified in the SOP, these samples were centrifuged followed by prefiltering using Whatman 2V filter membranes before they were analyzed. The leachate indicators were analyzed according to the protocols in the SOP using either a compound-specific digital titration kit (for alkalinity, hardness, and chloride) or a field meter (for ammonia, specific conductance, and pH). Temperature was also field-measured using a mercury-filled thermometer. Three replicate samples were collected from each exploratory boring (more than 20 percent of the total number of samples) and were sent to either IEA, Inc. Monroe, Connecticut or EcoTest for analysis of four of the seven leachate indicators (ammonia, alkalinity, hardness, and chloride). A summary of the field and laboratory analytical results for samples collected from both borings is presented in Table 2-1.

The results in Table 2-1 indicate that leachate parameters were detected in Exploratory Boring SY-3DD at concentrations above the established action levels (background levels) beginning at the water table; concentrations gradually increased until maximum concentrations were generally reached between 218 and 239 feet below land surface. After this interval, leachate indicator concentrations decreased until the termination depth was reached at 540 feet. In Exploratory Boring PK-10D, the concentrations of leachate parameters were generally lower than SY-3DD, except for the sampling interval between 340 and 380 feet below land surface where concentrations approached the highest concentrations detected at SY-3DD.

2.1.4 Termination Depths of Exploratory Borings

In accordance with the SOP, the termination depths of the two exploratory borings were determined using criteria established from background water-quality data obtained for monitoring and public supply wells within approximately 2 miles of the landfill (Figure 2-1). Geraghty & Miller obtained historical groundwater quality data, dating back to 1989, for leachate indicator parameters from eight Nassau County Monitoring Wells (OP-1, OP-3, P-7, P-8A, PT-2, PT-3, T-6A, and TU-1) and data, dating back to 1990, for a total of six public supply wells owned by the Plainview Water District (N4097, N6076, and N6077), the Hicksville Water District (N8249 and N6191), and the Jericho Water District (N7781). In addition, from September 24 to 28, 1992, Geraghty & Miller collected samples from all of the eight Nassau County monitoring wells listed above and all but two of the water district wells (N6191 and N7781). Samples were analyzed for leachate indicators so current data could supplement the historic data. These data were then statistically analyzed by Geraghty & Miller to establish action levels for each of the seven leachate indicators so that termination depths of the two exploratory borings (SY-3DD and PK-10D) could be determined. A different statistical method than that specified in the RI Work Plan was used to analyze the background water-quality data because the data set was smaller than expected and the specified method was not appropriate for the limited number of data points available from the wells. The rationale for using the replacement statistical method was explained in a December 3, 1992 letter from Geraghty & Miller to the USEPA (Glasser and Wolfert, pers. comm. 1992). This statistical procedure is described in Appendix D.

The action levels established for the seven leachate indicators using the replacement statistical method were lower than the action levels established using the SOP method and, therefore, being more conservative, were used to determine the termination depths of the exploratory borings. According to the RI Work Plan, Exploratory Borings SY-3DD and PK-10D were to be terminated when either of the following conditions were met:

1. The concentrations of the three primary leachate indicators (ammonia, alkalinity, and hardness) were below their respective action levels in two consecutive samples, or

2. If only one of the primary indicators remained slightly above its action level in consecutive samples, then the action levels of the three secondary leachate indicator parameters were to be evaluated. A boring was terminated when one or more of the secondary action levels were not exceeded.

2.1.5 Geophysical Logging

Natural gamma geophysical logging was conducted by Geraghty & Miller in the deep boring at each of the four drilling locations (SY-3DD, PK-10D, RB-11D, and RW-12D). Electric logging was also conducted by Geraghty & Miller in the two deep mud-rotary borings (RB-11D and RW-12D).

Gamma logging involves the measurement of naturally occurring radiation originating from geologic material opposite the borehole and provides a qualitative guide to correlating stratigraphy and evaluating permeability. Gamma radiation is emitted from certain elements that are unstable and decay spontaneously into other, more stable elements. Although other types of radiation are given off by naturally radioactive minerals (alpha and beta emissions), only gamma rays are measured in well logging because only these rays can penetrate materials such as casing and cement grout. Gamma logging has a unique advantage over electric logging because it can be performed either in cased wells or open boreholes, whereas electric logging can only be conducted in uncased boreholes filled with fluid.

The minerals commonly found in sedimentary deposits, such as clay, limestone, and sandstone, contain small amounts of radioactive potassium-40 and decay products of uranium and thorium. Potassium is an important constituent of clay, mica, feldspar, and shale, and its radioactive isotope (potassium-40) emits gamma rays. Because these materials tend to be finer grained, elevated gamma responses are often interpreted as corresponding to sediments of relatively low permeability. Coarser grained sand contains no potassium or radioactive potassium-40 and emits gamma rays at relatively low levels. Consequently, the gamma log shows more radiation (counts per second) at depths corresponding to clay or silt, and lower radiation levels (fewer counts per second) at depths corresponding to sand or sandstone layers, if the sand is mostly quartz.

Geraghty & Miller conducted the geophysical logging program using its truck-mounted EG&G Mount Sopris Model II logging system, which consists of a logger and the probe. The probe contains a scintillation-type receiver and a counting circuit. The probe, which was attached to a cable, was lowered and raised the entire length of each well while graphs were produced by the digital logger recorder, which was located in the truck. Radiation intensity for a given geologic formation was measured by the probe and expressed as the average number of counts per second. Since the logger is fully automated and the probe is factory sealed, no calibration was required.

As mentioned in Section 2.1.1.2 (Modified Mud-Rotary Method), the screen zones for all monitoring wells not drilled by the air rotary method were preselected based on the water-quality and lithologic profiles (including geophysical logs) obtained from the two exploratory borings. The preselected screen settings were adjusted for Wells RB-11S and RB-11D where the geophysical log from the deep mud rotary boring (RB-11D) indicated fine-grained material in the preselected screen zone.

Although gamma logging can be done in steel casing and is very effective in identifying low-permeability layers (clay or silt or combination), steel decreases the intensity of the gamma output. The larger the casing diameter, the more the gamma output is reduced, and a correspondingly larger correction factor is needed to adjust the gamma log to a "no casing" condition. The impact is cumulative when casings are telescoped inside one another as they are in SY-3DD and PK-10D. Therefore, correction factors were obtained from the Mount Sopris Company for each casing diameter used. Copies of the uncorrected geophysical logs (gamma and electric) are presented in Appendix E. The corrected gamma logs are included on the hydrogeologic cross sections (see Section 3.1 [Hydrogeology]).

2.1.6 Monitoring Well Construction

The construction details for the nine new and 15 preexisting monitoring wells are presented in Table 2-2, and monitoring well construction logs are provided in Appendix F. The monitoring wells were constructed according to the protocols in the SOP. Each well was constructed of 4-inch diameter polyvinyl chloride (PVC) casing (schedule 40) and 10 feet of 4-inch diameter stainless-steel screen, except for Well SY-3DD, which was constructed of 2-inch diameter PVC casing and stainless-steel screen. As previously discussed, 2-inch diameter casing and screen were used in SY-3DD to complete that well (see Section 2.1.1.1.1 [Exploratory Borings]). The wells were sand-packed, using J. Morie Company No. 1 sand, which was placed around the screen from the bottom of the boring to several feet above the top of the screen. Another layer of finer sand (J. Morie Company No. 00) was added above the No. 1 sand to complete the sand pack and serve as a buffer between the sand pack and the grout seal. Volclay grout was pumped through a side port tremie pipe into the annular space between the borehole wall (for the mud-rotary and auger borings) or the steel casing (for the air-rotary borings) and the well casing from the top of the fine sand up to about 2 feet below land surface. Except for Well SY-3DD, each well was completed at land surface with a flush-mounted, curb box cemented in the ground around the well head. Well SY-3DD was completed aboveground (stickup) because it is located on-site in a brushy area. The 6-inch diameter steel casing used to complete the drilling of SY-3DD was cut off approximately 2.5 feet above land surface to serve as a protective stand pipe for the 2-inch diameter stickup.

According to the SOP, the steel drill casings needed to drill the exploratory borings were to be removed from the ground, except for the 10-inch diameter casing, which was to be left to case-off the upper permeable deposits. However, both wells SY-3DD and PK-10D were constructed with most of the steel drill casing left in the ground to provide additional well integrity. Only the smallest drill casings in the exploratory borings (6-inch diameter in SY-3DD and 8-inch diameter in PK-10D) were pulled back just enough to expose the screen and a few feet of well casing during sand packing. This change to the SOP (i.e., leaving the steel drill casings in the ground) was proposed in an August 25, 1992 letter from Geraghty & Miller to LKB (Geraghty & Miller, Inc. 1992) and was subsequently approved by the USEPA. Due to concern that these drill casings for Wells SY-3DD and PK-10D might settle due to potentially unstable subsurface conditions resulting from sand heaving during drilling, Delta joined the casings together at land surface by welding concentric metal rings between the casings. In addition, metal strips ("sleepers") were welded onto opposite sides of the outermost (16-inch diameter) steel casing; these metal strips extend several feet in either direction (perpendicular to the well casing) in a trench that was backfilled.

As stated in Section 2.1.1.2 [Modified Mud-Rotary Method], Monitoring Well PK-10S was constructed in the initial PK-10I well boring that collapsed. Geraghty & Miller's recommendation to salvage the PK-10I boring (see Appendix B) was approved by the USEPA, and the collapsed PK-10I well boring was salvaged by using a cable-tool rig, which advanced 6-inch diameter casing inside the existing 10-inch diameter surface casing to a total depth of 151 feet. After the cuttings were removed by bailing them from the 6-inch diameter casing, the 10-foot section of 4-inch diameter stainless-steel screen and schedule 40 PVC casing was installed to a depth of 149 feet. The 6-inch diameter casing was then pulled back as sand pack was added in the annulus between the 4-inch diameter well and the 10-inch diameter surface casing from the bottom of the boring to 5 feet below land surface. The depth to the top of the gravel pack will be measured periodically to check for settling, and additional gravel will be added as needed. To prevent the potential settling of the well, clamps were used to secure the 4-inch diameter PVC well casing to the 10-inch diameter surface casing at land surface. The annular space of Well PK-10S was sealed using a rubber gasket set above the gravel pack, a metal plate/ring was then welded on the inside of the 10-inch diameter steel casing to cover the rubber gasket. A 1-inch diameter access port was installed in the plate for measuring the depth of the gravel and for adding gravel, if needed. A large flush-mounted manhole was used to complete the well.

2.1.7 Surveying of Monitoring Wells

On November 22, 1993, after the OU-2 RI drilling program was completed, the measuring points of the nine new monitoring wells (SY-3DD, PK-10S, PK-10I, PK-10D, RB-11S, RB-11I, RB-11D, RW-12I, and RW-12D) and five preexisting on-site monitoring wells (W-3, SY-2R, SY-2D, SY-7, and SY-6) were surveyed to the National Geodetic Vertical Datum (mean sea level) by LKB (New York State-licensed surveyors) to an accuracy of 0.01 feet. The horizontal locations of the wells were surveyed to the New York State Plane Coordinate system. These data are presented in Table 2-3. The five preexisting on-site wells were resurveyed because the measuring point had changed due to damage to the well or because the well had been repaired.

2.1.8 Well Development

Following installation, five (SY-3DD, PK-10I, PK-10D, RB-11I, and RB-11D) of the nine new monitoring wells were developed using compressed air with an oil filter installed in the air line air compressor. The four other wells (PK-10S, RB-11S, RW-12I, and RW-12D) were developed using a submersible pump. Surging action was accomplished by turning the air compressor or submersible pump on and off. A well was considered developed when the turbidity decreased to less than 50 nephelometric units (NTUs) and when more water was removed from the well than was added during drilling. Development water from the eight off-site monitoring wells was pumped into a tanker truck supplied by Delta and disposed of at a designated location at the landfill. Hay bales were used to prevent runoff from leaving the site. Development water from Well SY-3DD was pumped directly to the designated location at the landfill.

During the initial development of Well PK-10D, approximately 8,000 gallons of water were inadvertently discharged to the ground by the driller. Geraghty & Miller suspended development of this well until a tanker was brought to the site to containerize the water and dispose of it at the landfill. This development water was found to have formed a small puddle just covering the grass (about 200 square feet) and was rapidly absorbed by the soil. To evaluate any potential hazard, Geraghty & Miller sampled the well, at the Town's direction, before development was completed. The samples were sent to EcoTest for rush-analysis of VOCs and leachate parameters. VOCs were not expected to be detected given the depth of the well (499 feet), the intended use of the well (clean, deep monitoring point), the results of in-field leachate testing, and the fact that the well screen was set below a low-permeability unit. The analytical results (Appendix G) indicated that VOCs were not detected and the concentrations of the leachate indicator parameters that were detected (ammonia, chloride, alkalinity, and hardness) did not represent a public health concern.

2.1.9 Well Repair/Well Deletions

During the Off-Site Groundwater Study, one monitoring well (SY-7) was repaired and three monitoring wells (W-3, W-4, and SY-5) were deleted from the groundwater sampling program. These repairs and deletions are discussed in detail in the following sections.

2.1.9.1 Repair of Monitoring Well SY-7

Monitoring Well SY-7 was repaired because the parking lot in which it is located (adjacent to the TOB-DPW building at the site) was repaved and the well head (curb box) was covered with asphalt. The horizontal survey coordinates from the OU-1 RI were used to locate the well head and repairs were performed by Delta on October 15, 1993. When the well head was exposed, the steel well casing was found to be bent at an acute angle. To repair the well, Delta removed the bent section of casing and coupled a new section of casing to the well. A new curb box was then installed flush with the new level of the parking lot to complete the repair. In addition, Well SY-7 was redeveloped because sediment was found at the bottom of the well. Development was accomplished using compressed air and the water was containerized and disposed of at the landfill.

2.1.9.2 Deletion of Monitoring Wells W-3, W-4, and SY-5 from the Groundwater Sampling Program

Shallow Monitoring Wells W-3, W-4, and SY-5 were deleted from the groundwater sampling program with the approval of the USEPA because it was determined that these three wells were unnecessary monitoring points for the OU-2 RI. These wells had been installed along the center line of the long axis of the landfill for use during the OU-1 RI. Monitoring Well W-4, which had been scheduled for repair concurrently with Well SY-7, could not be located even with a systematic search using a backhoe. At this point, an evaluation was made as to whether a shallow monitoring well was actually needed for the OU-2 RI at this location. The nearby existing monitoring wells were determined to be sufficient for the purpose of the OU-2 RI and for long-term monitoring. This same rationale was applied to Well W-3, which was found damaged (the casing was bent at depth), and to Well SY-5, which could not be located, although the surface casing (stickup) was found. Well W-3 was resurveyed as discussed in Section 2.1.7 (Surveying of Monitoring Wells); it was still functional for water-level monitoring. However, this well was no longer functional for water-quality monitoring because a bailer for sampling could no longer fit in this well. Well W-3 will be abandoned according to the New York State Department of Environmental Conservation (NYSDEC) protocols during the OU-1 Remedial Design Program.

2.1.10 <u>Measurement of Water Levels</u>

Water-levels were measured in both the Syosset Landfill monitoring wells (on-site and off-site) and in the Nassau County monitoring wells during the Off-Site Groundwater Study so that vertical hydraulic gradients and groundwater flow directions could be determined and potentiometric surface maps could be prepared for assessing horizontal hydraulic gradients and flow directions. Details concerning the measurement of water levels are presented in the following sections.

2.1.10.1 Regional Water Levels

On October 29, 1993, Geraghty & Miller measured water levels in 18 Nassau County monitoring wells located within approximately 2 miles of the site. Water levels were measured using an electronic M-scope and following SOP protocols. Of the 18 wells in which water levels were measured, 16 had also been measured during the OU-1 RI. Well P-7, which had been measured during the OU-1 RI, was destroyed; therefore water levels were measured in a replacement well (P-7A), located approximately 2,000 feet south-southeast of P-7. Water-level elevations are summarized in Table 2-4 and were calculated from measuring point elevation data provided by Nassau County.

2.1.10.2 Site Water Levels

On October 28, 1993 and on November 24, 1993, Geraghty & Miller measured water levels in the monitoring wells on- and off-site following SOP protocols. Water-level elevations are summarized in Table 2-5 and were calculated from the surveyed measuring-point elevations. Water-level measurements were made using an electronic M-scope.

2.1.11 Groundwater Sampling Program

In accordance with SOP protocols, two rounds of groundwater samples were collected by Geraghty & Miller from the nine new monitoring wells and 12 of the 15 preexisting on-site monitoring wells. The first round of groundwater samples was collected from November 1 through 5, 1993, and the second round was collected from November 29 through December 3, 1993. At the end of each sampling day, samples were shipped via overnight courier (Federal Express) to IEA Laboratories, Inc. (IEA), Monroe, Connecticut following chain-of-custody procedures. Water sampling logs and chain-of-custody forms are in Appendix H.

2.1.11.1 Revised Parameter List

The parameter list specified in the SOP was revised following a meeting held with the USEPA, the Town, LKB, and Geraghty & Miller on February 18, 1993. The revision was based on a reevaluation of the OU-1 RI water-quality data in conjunction with the then-current OU-2 RI field data (vertical water-quality profiles and lithologic logs) that had been collected from the two exploratory borings (SY-3DD and PK-10D). The revised parameter list (Table 2-6) was proposed in an April 1, 1993 letter from Geraghty & Miller (Glasser and Wolfert, pers. comm. 1993) to LKB and was subsequently approved by the USEPA. PCBs, acid-extractable compounds, and cyanide were deleted from the parameter list because, except for 4-methyl phenol, which was detected in two wells (SY-5 and SY-7) at concentrations less than 2 micrograms per liter (ug/L), and cyanide, which was detected in one well (SY-6) at a concentration of less than 0.2 ug/L, these analytes were not detected in the groundwater during the OU-1 RI. Base neutral compounds were also deleted from the parameter list because they were mostly undetected during the OU-1 RI. Phthalates, a class of base neutral compounds, were detected at slightly higher concentrations during the OU-1 RI; however, because these compounds were also detected in the method blanks and are known laboratory contaminants, these phthalates are not contaminants of concern and were therefore deleted from the parameter list.

During the OU-1 RI, VOCs were not detected at concentrations consistent with a plume that has the landfill as a source. However, VOCs were retained on the parameter list due to concern that these mobile compounds may have migrated off-site. Groundwater samples collected for the first and second sampling rounds were analyzed by IEA for analytes on the revised parameter list, including VOCs, metals (total and dissolved), and leachate indicator parameters (inorganics). The revised parameter list is presented in Table 2-6.

Two samples were collected from each monitoring well during each round for metals analysis. One sample was unfiltered for analysis of total metals and the other sample was filtered through a 0.45-micron filter membrane for analysis of dissolved metals. The purpose of these two analyses was to determine whether colloidal particles in the samples were contributing to the metals detected. When groundwater samples containing colloidal particles are acidified, sorbed metals tend to be put into solution through cation exchange thereby increasing the total metals concentrations in the water sample (Strausberg 1983). Thus, the results of the unfiltered metals analysis do not reflect only dissolved metals in the groundwater. Rather, these results reflect the combination of dissolved metals and metals desorbed through acidification.

Samples collected from each well for measurement of field parameters (temperature, pH, and specific conductance) were divided into four aliquots and each aliquot was analyzed in the field for the three parameters by the Geraghty & Miller sampling team. These measurements were recorded on the water sampling log forms presented in Appendix H.

2.1.11.2 Quality Control Samples

Quality Control (QC) samples, consisting of trip blanks, field blanks, matrix spike, and matrix spike duplicates, and replicates, were utilized during the groundwater sampling program to monitor sampling and laboratory performance. With each daily shipment of samples to the laboratory, trip blanks, prepared by IEA, and field blanks, prepared daily by Geraghty & Miller, were sent, following chain-of-custody procedures, via overnight courier to IEA. Because trip blanks were required to be less than 24 hours older than each accompanying sample shipment sent to the laboratory, on the first day of each sampling round, IEA sent a same-day courier with a trip blank that had been prepared at the laboratory that morning. For each sampling day thereafter, IEA sent trip blank samples, via overnight courier, that were prepared the previous night. Also, with the trip blank sent on the first day of each round, the same-day courier delivered analyte-free water prepared by IEA (for field blank preparation and for decontaminating sampling equipment), as well as acid preservatives for several of the analytical parameters. The analytical parameters that required field acidification to a pH value of less than 2 were as follows: VOCs (hydrochloric acid), metals (nitric acid), ammonia (sulfuric acid), and total hardness (nitric acid). To ensure that the analyte-free water was clean, IEA analyzed samples of batched water produced for the two sampling rounds. The results of IEA's analyses show that the concentrations of parameter list analytes were below USEPA limits (Appendix I).

Replicate samples were collected by Geraghty & Miller during both sampling rounds from the same three off-site intermediate-depth monitoring wells (PK-10I [Rep-2], RB-11I [Rep-1], and RW-12I [Rep-3]) that monitor the most contaminated portion of the leachate plume (as determined by in-field leachate parameter testing during drilling of Exploratory Borings SY-3DD and PK-10D). Samples were collected for matrix spike and matrix spike duplicate analyses from Monitoring Wells SY-1 and PK-10D for both sampling rounds. CDM collected split samples from on-site Monitoring Well SY-1 (shallow) and off-site Monitoring Wells RB-11I (intermediate) and RB-11D (deep) during both sampling rounds. The parameter list being used by CDM includes the OU-2 RI parameter list plus additional parameters. CDM's list is longer than the OU-2 RI parameter list because CDM's contract laboratory does not perform analyses for customized parameter lists and only performs analyses for "packaged" lists that include predetermined parameters. The USEPA and CDM will compare the analytical results for the split samples with the results presented in this report as an independent QC check.

2.1.11.3 Well Evacuation and Sample Collection

Approximately three well volumes of water were evacuated from each monitoring well before samples were collected. Evacuation was accomplished by using either a submersible pump (2- or 4-inch diameter) or a bailer (see Water Sampling Logs in Appendix H). Four of the preexisting on-site monitoring wells (SY-1D, SY-2R, SY-6D, and SY-8) were purged using the existing permanently installed submersible pumps: The remaining monitoring wells were purged using submersible pumps that were temporarily installed and decontaminated according to the protocols in the SOP. Permanent submersible pumps have not yet been installed in the nine new monitoring wells because several different pump systems were evaluated for long-term cost-effectiveness and logistics. Based on this evaluation, the Town, in consultation with Geraghty & Miller and LKB, ultimately decided that the submersible pumps be installed as specified in the SOP because that pumping system was judged the most appropriate of the systems evaluated.

Purge water from the on-site monitoring wells was discharged to the ground. Purge water from the off-site wells was pumped to a tanker and transported to the landfill for disposal at a designated location.

For the four wells that had permanently installed submersible pumps, water samples for all parameters except VOCs were collected from the pump discharge; water samples for VOC analysis were collected from these wells using a 3/4-inch diameter PVC bailer. A Teflon bailer was used to collect samples for all parameters from the wells without permanently installed submersible pumps.

2.1.11.4 Decontamination of Sampling Equipment

In addition to the SOP specifications for decontamination procedures, Geraghty & Miller used acetone after Step 4 of the SOP protocol to decontaminate the sampling equipment during the two sampling rounds. This addition to the decontamination procedure was requested by the USEPA and agreed to by the Town, LKB, and Geraghty & Miller at the February 18, 1993 meeting.

2.1.11.5 Data Validation

The VOC and metals data were validated in accordance with the guidelines in the USEPA Region II SOPs "CLP Organics Data Review and Preliminary Review" (USEPA 1992) and "Evaluation of Metals Data for Contract Laboratory Program (CLP)" (USEPA 1992). The documentation prepared as a result of validating the data according to the USEPA Region II SOPs is presented as a separate document entitled "Data Validation Summary Report for the Second Operable Unit Remedial Investigation of the Syosset Landfill, Syosset, New York." Because the USEPA has no SOPs for validating leachate indicator parameters, Geraghty & Miller performed all QC checks possible with the information reported by IEA (holding times, duplicate results, spike results, and blank results). The results of the leachate indicator data review are also contained in that document. Overall, the data were found to be acceptable and usable with the exceptions described in the Data Validation

Summary Report. The qualifiers applied to the analytical results were based on the USEPA Region II data validation SOPs; a relatively small number of sample results required qualification.

2.2 OFF-SITE SUBSURFACE GAS STUDY

The Off-Site Subsurface Gas Study was conducted to determine the extent of off-site subsurface gas migration from the landfill because elevated concentrations of methane gas had been detected during the OU-1 RI. The methodologies used to construct and monitor the gas monitoring wells are described in the following sections.

2.2.1 Gas Well Installation and Construction

On September 28 and 29, 1993, Geraghty & Miller installed three additional gas monitoring wells (CS-20, CS-21, and CS-22) in accordance with the SOP, at the Clark Surgical Corporation (Clark) property, which is located west of the Syosset Landfill on the other side of the LIRR track. According to the OU-2 RI SOP and Work Plan, the three off-site gas wells were planned to be installed at the Great Eastern Printing Company (Great Eastern) which is located south of Clark. However, Great Eastern refused permission to perform this work and the Town, therefore, sought access from Clark. The locations of these three new gas wells and the six preexisting on-site gas wells (G-6, G-7, G-8, G-10, G-13, and G-14), which were also specified to be monitored during the OU-2 RI, are shown on Figure 1-2. CDM provided oversight for installation of Wells CS-20 and CS-21 on September 28, 1993.

An 8- to 10-inch diameter borehole was excavated for each gas well, using a shovel, post-hole digger, and an iron bar, to depths of 4.7 feet (CS-20), 5.0 feet (CS-21), and 4.25 feet (CS-22). These excavation tools were decontaminated before and after each use using Micro detergent solution followed by rinsing with distilled water. Hand-slotted, 1-inch diameter, PVC screen (2 to 2.5 feet long) attached to PVC casing of the same diameter was installed in each borehole following excavation. J. Morie Company No. 1 sand was used to fill the annular space between the screen and the borehole wall from the bottom of the borehole to several inches above the top of the screen. Bentonite slurry was mixed by hand in a mortar pan using potable water and was emplaced above the sand pack to within 0.6 foot below land surface. To complete each well, a flush-mounted curb box assembly was cemented in place with a layer of native soil between the bottom of the curb box assembly and the top of the bentonite slurry seal to allow for drainage of runoff that could collect inside the curb box. The top of each new gas well was fitted with a 1-inch diameter PVC cap with 1/4-inch diameter silicon tubing attached for gas monitoring. The end of the silicon tubing was closed off with a metal clip to prevent venting. A summary of the construction details for the gas monitoring wells is presented in Table 2-7, and the gas well construction logs are presented in Appendix J.

2.2.2 Gas Monitoring

The three new off-site subsurface gas monitoring wells were monitored by Geraghty & Miller for methane and total organic vapors on 3 days of low or falling barometric pressure (February 25, March 1, 2, and 7, 1994). In addition to these three new gas wells, four preexisting gas monitoring wells (G-6, G-7, G-13, and G-14) were also monitored as specified. Gas wells G-8 and G-10 were specified to be monitored too, but Well G-8 was destroyed and G-10 could not be located. Monitoring was performed using a Foxboro Model 128 organic vapor analyzer (OVA), a flame-ionization detector. Total organic vapors were measured using a standard OVA probe, while methane was measured using an activated charcoal-filter probe. Before measuring the wells, the OVA was calibrated using "zero" gas and 9.8 parts per million (ppm) methane. To monitor a well, the OVA probe was inserted into the silicon tubing protruding from the PVC cap and the highest reading was recorded; this high measurement occurred within the first few seconds. In February, the wells were measured first for methane using the activated charcoal filter probe, followed by the measurement for total organic vapors using the standard probe. This order was reversed for the monitoring performed in March.

2.3 SUBSURFACE GAS WELL INSTALLATIONS AND MONITORING FOR THE ON-SITE REMEDIAL DESIGN PROGRAM

As mentioned in Section 1.3 (Purpose and Scope), five additional on-site gas monitoring well clusters were installed and monitored during the OU-2 RI as part of the OU-1 (On-Site) Remedial Design Program. The installation and monitoring protocols and the monitoring results of these wells are presented in a memorandum prepared by LKB (Appendix K).

3.0 RESULTS

The results of the Off-Site Groundwater Study and Off-Site Subsurface Gas Study, which were conducted as part of the OU-2 RI, are presented below.

3.1 HYDROGEOLOGY

During the Off-Site Groundwater Study, Wells SY-3DD and PK-10D were drilled almost to the bottom of the Magothy Formation, which is estimated to be approximately 600 feet below land surface. Well SY-3DD is 540 feet deep and Well PK-10D is 499 feet deep. The four "deep" wells installed during the OU-1 RI (On-Site Groundwater Study) were only drilled to a shallow/intermediate depth from 192 to 205 feet below land surface in the Magothy Formation. The intermediate depth monitoring wells installed during the OU-2 RI are deeper than the OU-1 RI "deep" wells and range from 358.5 to 360 feet in depth.

Based on the data obtained from the formation samples and the geophysical logging, vertical lithologic profiles were established at each of the four drilling sites (SY-3, Town Park, Recharge Basin, and Roadway). These data were used to construct hydrogeologic cross sections A-A' (Figure 3-1) and B-B' (Figure 3-2); the locations of the lines of section are shown on Figure 1-2. The gamma logs for the four deep wells, which were corrected for casing interferences for Wells SY-3DD and PK-10D (see Appendix N for explanation of how logs were corrected), are superimposed on the corresponding wells on Figures 3-1 and 3-2 to illustrate the finer-grained deposits that were encountered in the predominantly fine sandy matrix of the Magothy Formation. The finer-grained deposits, which consist mostly of clay and silt, are indicated by the deflections to the right in the gamma log and correlate well to the descriptions on the sample/core logs.

Figure 3-1, which is based on logs from on-site Wells SY-4, W-3, and SY-3DD and off-site Well PK-10D, shows the fill material, water-table surface, well screen settings, and the interpreted hydrogeologic framework. The predominant composition of the Magothy (fine-grained sediments that include interbedded sequences of sand, with sandy clay, silt, and clay) shown on Figure 3-1 is consistent with the findings of the OU-1 RI.

The coarse-grained deposits typical of the Upper Glacial Formation, which is not saturated beneath and around the landfill, were encountered during the OU-2 RI. Based on the sample/core logs, the thickness of the Upper Glacial Formation appears to be more than 130 feet, but an exact determination of its thickness was not made because the texture and color of the Upper Glacial and Magothy Formations are frequently similar near the contact zone between them making differentiation of the units difficult.

Figure 3-2, which is based on the logs (sample/core logs and gamma logs) from the three off-site deep wells (PK-10D, RB-11D, and RW-12D), shows the water-table surface, well screen settings, and the interpreted hydrogeologic framework. The most prevalent deposits on this figure (as on Figure 3-1) are the fine-grained sediments typical of the Magothy.

3.1.1 Regional Horizontal Direction of Groundwater Flow

The water-level elevation data collected by Geraghty & Miller from the 18 Nassau County shallow monitoring wells in the vicinity of the site on October 29, 1993 (Table 2-4) were used to construct the regional potentiometric surface of the shallow zone of the Magothy aquifer (Figure 3-3). As shown on this map, the regional east-west orientation of the groundwater divide is south of the site at almost exactly the same position and orientation that was documented during the OU-1 RI. North of this divide, groundwater flows in a northerly direction, and south of the divide, groundwater flows in a southerly direction. The direction of groundwater flow from the site is in a north-northeasterly direction, as shown on Figure 3-3, which is consistent with the regional direction of groundwater flow documented during the OU-1 RI.

3.1.2 Site-Specific Horizontal Direction of Groundwater Flow

The water-level elevation collected by Geraghty & Miller from the nine new and 12 preexisting monitoring wells on October 28, 1993 and November 24, 1993 (see Table 2-5) were used to construct potentiometric surface maps of the shallow zone (Figures 3-4 and 3-5, respectively), and the intermediate zone (Figures 3-6 and 3-7, respectively). Flow maps of the deep zone for the October and November rounds (Figures 3-8 and 3-9, respectively) were also developed to depict the direction of groundwater flow. A discussion of the groundwater flow direction in each zone of the Magothy aquifer is presented in the following sections.

3.1.2.1 Shallow Zone

As shown on Figures 3-4 and 3-5, groundwater flows from the east and west boundaries of the site toward the center of the landfill; at this point, the flow converges and moves in a northerly direction toward the Town Park where Well Cluster PK-10 is located. This pattern was observed on both October 28, 1993 and November 24, 1993 and is similar, although more pronounced, to the pattern observed on October 27, 1988 during the OU-1 RI (see Figure 8 in Appendix L). This general northerly groundwater flow direction observed in the shallow zone of the Magothy is consistent with the regional flow direction depicted on Figure 3-3, but more variability is seen on the site-specific scale than the regional scale. This local variability of the groundwater flow direction observed on the site-specific scale is likely due to the greater density of data points locally, as compared to regionally, and the proximity of the site to the regional groundwater divide, which results in a correspondingly relatively flat horizontal hydraulic gradient on-site (see Section 3.1.4 [Comparison of Horizontal and Vertical Hydraulic Gradients]).

3.1.2.2 Intermediate Zone

Water-level elevation data from the four on-site "deep" wells (SY-1D [192 feet], SY-2D [200 feet], SY-3D [199 feet], and SY-6D [205 feet]) and three off-site intermediate wells (PK-10I

[362 feet], RB-11I [358.5 feet], and RW-12I [360 feet]) were used to prepare the potentiometric surface maps (Figures 3-6 and 3-7) for the intermediate zone of the Magothy aquifer. These seven wells are screened at two different levels in the intermediate zone, but were combined to prepare a composite map. Ideally, to use wells on the same map for determining the groundwater flow direction, the elevations of the screen zones should be similar. However, in many investigations of contamination, wells are installed in phases at various depths to provide specific information on contaminant distribution, with the result that the monitoring network may not be ideal for water-level mapping purposes. The alternative to preparing composite maps would be to prepare two or more maps with fewer data points per map (i.e., shallow and deeper intermediate maps with four and three data points, respectively). Unfortunately, this often results in insufficient control to confidently determine the groundwater flow direction. As such, composite maps usually are the best solution, especially if they are carefully compared to other data. In this specific case, the composite intermediate maps show a general flow direction consistent with the shallow and deep maps and appear to accurately depict flow in the intermediate zone.

As shown on Figures 3-6 and 3-7, groundwater in the intermediate zone in the eastern part of the study area flows in a northwesterly to north direction while to the west the flow is oriented slightly east of north. This groundwater pattern is virtually the same for both dates on which water levels were measured.

3.1.2.3 Deep Zone

The groundwater flow direction in the deep zone was determined by triangulating the water-level elevation data between the four deep monitoring wells (SY-3DD, PK-10D, RB-11D, and RW-12D) where water-level measurements were collected on October 28, 1993 (Figure 3-8) and November 24, 1993 (Figure 3-9). Contour maps were not prepared for the deep zone because of the sparsity of data points. The flow arrow on Figure 3-8 and the westernmost flow arrow on Figure 3-9 are the result of triangulating between wells RW-12D, SY-3DD, and PK-10D. The easternmost flow arrow on Figure 3-9 is the result of triangulating between Wells PK-10D, SY-3DD, and RB-11D, a similar triangulation was not done for Figure 3-8 because of the anomalous water-level elevation in Well RB-11D on October 28, 1993.

For both deep flow maps (Figures 3-8 and 3-9), groundwater is shown flowing in a northerly direction with a northeasterly component also apparent near the Town Park in November 1993 (Figure 3-9).

3.1.3 <u>Vertical Direction of Hydraulic Gradient</u>

The vertical hydraulic gradient direction (upward or downward) was determined by comparing the water-level elevations (potentiometric head) of monitoring wells within each well cluster (see Table 2-5); groundwater flows in the direction of lower potentiometric head. Due to the proximity of the study area to the regional groundwater divide, the vertical hydraulic gradient direction was expected to be downward at all six locations where wells are clustered (SY-1, SY-2, SY-3, PK-10, RB-11, and RW-12); this was found to be true at all well cluster sites on October 28, 1993, except for Well Cluster PK-10. At Cluster PK-10, the potentiometric levels were the same in PK-10I and PK-10D, indicating a lack of vertical gradient between these two wells although there was a vertical gradient downward between Wells PK-10S and PK-10I.

On November 24, 1993, a downward hydraulic gradient direction was noted at four of the six cluster locations while an upward direction was documented at Well Clusters SY-1 and PK-10 (between the intermediate and deep wells). Because only two water-level rounds, approximately 1 month apart are available, it is not known if these variances from expected conditions are long term or temporal variations; but, generally, the vertical hydraulic gradient in the study area is downward.

3.1.4 Comparison of Horizontal and Vertical Hydraulic Gradients

The horizontal and vertical hydraulic gradients were calculated using data presented in Table 2-5 and on Figures 3-4, 3-5, 3-6, 3-7, 3-8, and 3-9. By comparing the horizontal hydraulic gradient (I_H) and the vertical hydraulic gradient (I_V), a more complete understanding of hydrogeologic site conditions can be gained that is helpful in explaining the distribution and migration of contaminants from the landfill as evidenced by the water-quality data.

The horizontal hydraulic gradient was calculated by using the formula:

$$I_H = \frac{\Delta h}{L}$$

where, I_H = The horizontal hydraulic gradient (dimensionless).

Δh = The difference in potentiometric head (water-level elevation) between two groundwater contours (in feet).

L = The horizontal distance between the two groundwater contours along a flow line (in feet) shown on figures.

For both the shallow and intermediate zones, Δh was calculated by subtracting the lowest contour from the highest non-dashed contour on the potentiometric flow maps (Figures 3-4 through 3-7) along the distance (L) of three different groundwater flow lines approximately coinciding with the flow arrows shown on each figure. Thus, three values of I_H were calculated for the two dates for both the shallow and intermediate zones. For the deep zone, the same general procedure was followed, but only one value was calculated for each date due to the minimal number of data points and the need to triangulate flow direction and not contour water levels (see Table 3-1a for details). The average I_H for the shallow zone on October 28 (see Figure 3-4) and November 24, 1993 (see Figure 3-5) was 0.00065 and 0.00064, respectively. The combined average I_H for the shallow zone for both dates was 0.00065.

The average I_H for the intermediate zone on October 28, 1993 (Figure 3-6) and November 24, 1993 (Figure 3-7) was 0.00114 and 0.00108, respectively. The combined average I_H for the intermediate zone for both dates was 0.00111, which is almost twice the I_H for the shallow zone.

The horizontal hydraulic gradient for the deep zone for October 28, 1993 (Figure 3-8) and November 24, 1993 (Figure 3-9) was 0.00067 and 0.00085, respectively. The average value for both dates was 0.00076, which is similar to the shallow zone.

The vertical hydraulic gradient (I_V) was calculated using the same equation with L representing the vertical distance (in feet) between two screen zones, and Δh representing the difference in potentiometric head between two screen zones (wells) in a well cluster. A summary of the data used to calculate I_V is provided in Table 3-1b. In well clusters with three wells, I_V was calculated between the shallow and intermediate wells, and between the intermediate and deep wells. On October 28, 1993, the average I_V was 0.0042, and on November 24, 1993, the average I_V was 0.0024. I_V for November was lower due to the reversed (upward) gradients observed at Well Clusters SY-1 and PK-10. The reversed (upward) gradients were factored in the average values as negative numbers resulting in a lower average I_V. The combined average I_V for October and November is 0.0033. The I_V (0.0033)/I_H (shallow zone) (0.00065) equals approximately 5, I_V (0.0033)/I_H (Intermediate zone) (0.00111) equals approximately 3, and I_v (0.0033)/I_H (deep zone) (0.00076) equals approximately 4 indicating that the vertical hydraulic gradient is greater than the horizontal hydraulic gradient for the shallow, intermediate, and deep zones of the Magothy aquifer.

3.2 GROUNDWATER QUALITY

As discussed in Section 2.1.10 (Measurement of Water Levels), two rounds of groundwater samples were collected: the first round of samples was collected from November 1 through November 5, 1993, and the second round of samples was collected from November 29 through December 3, 1993. The analytical results for the samples are presented in Tables 3-2, 3-3, and 3-4 and are discussed in the following sections.

3.2.1 Volatile Organic Compounds

A summary of the analytical results for VOCs is presented in Table 3-2. The VOCs detected and their corresponding concentrations for both sampling rounds are presented on Figures 3-10 (shallow zone), 3-11 (intermediate zone), and 3-12 (deep zone). Overall, the first sampling round results, including the field replicate samples, correlate very well with the second sampling round results, both in terms of individual VOCs and their concentrations.

Of the 13 on-site wells sampled, VOCs were not detected during either sampling round in Wells SY-1 and SY-3DD. Total VOC concentrations were less than 10 ug/L for samples collected from on-site wells SY-2D, SY-2R, SY-6, SY-6D and SY-9 for both sampling rounds. The highest total VOC concentration for the on-site wells from either sampling round was 547.9 ug/L detected in Well SY-7. (This detection is not considered a result of landfill impacts [see Section 3.4]). The concentration of benzene detected in this well in November was 410 ug/L and in December was 540 ug/L. Benzene was not detected in any of the other on-site wells at concentrations greater than 2 ug/L, and it was not detected in any of the off-site wells at concentrations greater than 1 ug/L. Chlorobenzene was detected above the quantitation limit of 1 ug/L in four of the on-site wells, with concentrations ranging from 1.3 to 9.1 ug/L. Other compounds detected in at least two of the on-site wells at concentrations greater than the quantitation limit of 1 ug/L (or 20 ug/L for SY-7) were vinyl chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene.

In the on-site wells, MCLs were exceeded for the following compounds: vinyl chloride (MCL = 2 ug/L), cis-1,2-dichloroethene (MCL = 5 ug/L), chloroform (MCL = 7 ug/L), benzene (MCL = 0.7 ug/L), toluene (MCL = 5 ug/L), tetrachloroethene (MCL = 5 ug/L), chlorobenzene (MCL = 5 ug/L), and ortho-xylene (MCL = 5 ug/L). Of the 13 on-site wells sampled, at least one VOC was detected in seven wells (SY-1D, SY-3, SY-3D, SY-4, SY-6D, SY-7, and SY-8) above the federal and/or state MCLs during one or both sampling rounds. Well SY-7 contained three compounds (benzene, toluene, and ortho-xylene) which exceeded the federal and/or state MCLs. The remaining six wells contained only one or two compounds which exceeded the MCLs. The VOC concentrations detected in on-site monitoring wells during the OU-2 RI are consistent with regionally degraded groundwater quality as discussed in Appendix M.

In seven of the eight off-site wells, the total concentration of VOCs ranged from not detected in RB-11S (first sampling round) to 52.5 ug/L in RB-11I (second sampling round). However, the highest total concentration of VOCs occurred in Well RW-12I (259.7 ug/L). This detection of VOCs is several times higher than the highest concentration detected in the other monitoring wells on-site or off-site during either the OU-1 or OU-2 RIs and it appears that a source other than the landfill may exist (see Section 3.4 [Contaminant Migration]). Total VOC concentrations were less than 10 ug/L for samples collected from off-site wells PK-10D, RB-11S, and RB-11D for both sampling rounds. The compounds detected in samples collected from Well RW-12I for both sampling rounds above the quantitation limit (2 ug/L for the first round and 5 ug/L for the second round) were 1,1-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and tetrachloroethene. The compound detected in Well RW-12I at the highest concentration was tetrachloroethene (110 ug/L) during the second sampling round. Tetrachloroethene was also detected in off-site Wells PK-10S, PK-10I, RB-11I, and RW-12D at concentrations ranging from 1.3 ug/L to 23 ug/L. Benzene was not detected in any of the off-site wells at concentrations above 1 ug/L.

Chlorobenzene was only detected in off-site Well PK-10I above the quantitation limit (1 ug/L) at a concentration of 20 ug/L. Other compounds detected in at least two of the off-site wells at concentrations greater than the quantitation limit of 1 ug/L (or at least 2 ug/L for RW-12I) were 1,1-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and toluene.

In the off-site wells, the MCLs were exceeded for the following ten compounds: vinyl chloride (MCL = 2 ug/L), 1,1-dichloroethene (MCL = 5 ug/L), 1,1-dichloroethane (MCL = 5 ug/L), cis-1,2-dichloroethene (MCL = 5 ug/L), 1,1,1-trichloroethane (MCL = 5 ug/L), benzene (MCL = 0.7 ug/L), trichloroethene (MCL = 5 ug/L), toluene (MCL = 5 ug/L), tetrachloroethene (MCL = 5 ug/L), and chlorobenzene (MCL = 5 ug/L). Of the eight off-site wells sampled, VOCs were detected in six of these wells above the federal and/or state MCLs in one or both sampling rounds. Well RW-12I contained the most (seven) compounds (1,1-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloethene, 1,1,1-trichloroethane, trichloroethene, toluene, and tetrachloroethene) which exceeded federal and/or state MCLs. Well RW-12D had three compounds (vinyl chloride, benzene, and toluene) which exceeded the MCLs. The remaining four off-site wells contained only one or two compounds which exceeded one or both of the MCLs. The VOC concentrations detected in off-site monitoring wells (except Well RW-12I) during the OU-2 RI are consistent with regionally degraded groundwater quality as discussed in Appendix M. A supplemental round of sampling for VOCs was carried out in July 1995 and these results are given and discussed in Appendix P.

A few individual VOCs were detected in the trip blanks and field blanks analyzed. The VOCs detected in these blanks were primarily methylene chloride, acetone, and chloroform. These same compounds were also frequently detected in the laboratory method blanks associated with the trip and field blanks. All blank results are taken into consideration when validating the data and a detailed discussion about blank contamination can be found in the Data Validation Summary Report.

3.2.2 Leachate Indicator Parameters

Groundwater samples were also analyzed for leachate indicator parameters as part of the Off-Site Groundwater Study. The leachate indicator parameters include naturally occurring anions and cations, some of which can be extremely useful in determining landfill leachate impacts to groundwater (ammonia, hardness, alkalinity, iron, sodium, potassium, total dissolved solids, nitrate, sulfate, and chloride). These parameters have been employed as indicator parameters for landfill leachate in several other investigations on Long Island (Geraghty & Miller, Inc. 1985 and 1989, Saar & Braids 1983). The leachate indicator parameter sample results are summarized in Table 3-4. Selected leachate indicator parameters detected and their corresponding concentrations for both sampling rounds are presented on Figures 3-13 (shallow zone), 3-14 (intermediate zone), and 3-15 (deep zone). Overall, the results of both sampling rounds, including the field replicate samples, correlate very well both in terms of individual leachate indicator parameters detected and their concentrations. A more detailed discussion of the leachate indicator parameter results is presented in Sections 3.3 (Contaminant Distribution) and 3.4 (Contaminant Migration).

3.2.3 Metals (Total and Dissolved)

As discussed in Section 2.1.11.1 (Revised Parameter List), both filtered and unfiltered samples were collected for metals analysis. The purpose of these two analyses was to determine whether suspended particles in the samples were contributing to the metals detected since sorbed metals tend to be put into solution when the samples are acidified. The unfiltered samples were sent to the laboratory for analysis of total metals and the filtered samples were sent to the laboratory for analysis of dissolved metals. The total and dissolved metal sample results are summarized in Table 3-3. Overall, the results of both sampling rounds, including the field replicate samples, correlate very well both in terms of individual metals detected and their detected concentrations. The sample results for each metal were compared to either the New York State or federal drinking water standard (maximum contaminant level [MCL]), whichever value was lower. MCLs are included in Table 3-3; these values were used to assist in the evaluation of potential contamination both on- and off-site. One of the 17 metals analyzed (potassium) presently does not have an MCL.

Figures 3-16 (shallow zone), 3-17 (intermediate zone), and 3-18 (deep zone) show the distribution of metals and their concentrations for both sampling rounds. Except for sodium and iron, MCLs were not exceeded for any metals in the off-site wells, but antimony, arsenic, beryllium, iron, lead, and sodium were detected in at least one of the on-site wells at concentrations above the corresponding MCL. Antimony was detected above the MCL (6 ug/L) in non-filtered samples on at least one occasion in six on-site wells at concentrations ranging from 21.0 to 91.8 ug/L. Dissolved antimony was only detected above the MCL in filtered samples collected from Wells SY-3 and SY-4. Arsenic was detected above the MCL (50 ug/L) in non-filtered samples on at least one occasion in two on-site wells (SY-3 and SY-3D) with concentrations up to 102 ug/L. Dissolved arsenic was not detected above the MCL in either well. Total beryllium was detected only once in Well SY-2R in a non-filtered sample at a concentration of 7.8 ug/L (MCL = 4 ug/L). Lead was detected above the MCL (50 ug/L) in non-filtered samples on at least one occasion in four on-site wells with total concentrations up to 128 ug/L; however, none of the dissolved lead concentrations detected in the on-site wells was above the MCL. Sodium was detected in all on-site wells, except for Well SY-3DD, during both sampling rounds above the MCL (20,000 ug/L). Concentrations ranged from 20,100 ug/L to 239,000 ug/L.

Antimony, beryllium, mercury, silver, and thallium were not detected in any of the off-site wells sampled during either sampling round. Of the metals that were detected in the off-site wells, only iron and sodium, detected in most of the samples, were detected at concentrations above the corresponding MCL.

A few metals (copper, zinc, and iron) were detected in the field blanks analyzed at concentrations above the reporting limit. All blank results were taken into consideration when validating the data, and a detailed discussion about blank contamination can be found in the Data Validation Summary Report.

3.2.4 Contaminants of Concern

Below are listed the analytical parameters which exceeded federal and/or state maximum contaminant levels during the second operable unit remedial investigation of the Syosset Landfill, Syosset, New York.

Volatile Organic Compounds	Metals	Leachate Indicator Parameters
Vinyl chloride	Antimony	Chloride
1,1-Dichloroethene	Arsenic	Sulfate
1,1-Dichloroethane	Beryllium	Total Dissolved Solids
cis-1,2-Dichloroethene	Iron	
Chloroform	Lead	
1,1,1-Trichloroethane	Sodium	
Benzene		
Trichloroethene		
Toluene		
Tetrachloroethene		
Chlorobenzene		
Ortho-xylene		

3.3 CONTAMINANT DISTRIBUTION

In the following sections the areal distribution (on-site and off-site) of VOCs, leachate indicator parameters, and metals are discussed for the three hydrogeologic zones of the Magothy Formation (shallow, intermediate, and deep) and comparisons are made between the zones.

3.3.1 Shallow Zone

Figure 3-10 depicts VOC distribution and concentrations in the shallow zone for the November and December 1993 sampling rounds. Upgradient and downgradient (see figures for shallow groundwater zone flow directions) of the eastern half of the landfill, total VOC concentrations in each shallow well sampled was 1.7 ug/L or less for both sampling rounds. The only exception to this was Well SY-7, where total VOCs, consisting predominantly of benzene (more than 500 ug/L), were detected during each sampling round. As stated previously, this detection is not considered a result of landfill impacts (see Section 3.4 [Contaminant Migration]).

Total VOC concentrations were slightly higher in wells located on the western portion of the landfill with all results, except for one, being above 10 ug/L. The maximum total VOC concentration was 23.2 ug/L in Well SY-8 during the first sampling round.

Off-site, the total VOC concentration in Well PK-10S (10.8 to 13.9 ug/L) is similar to total VOCs on the western half of the landfill, while the total VOC concentration in Well RB-11S (not detected to 0.9 ug/L) is similar to total concentrations on the eastern half of the landfill.

Figure 3-13 depicts the distribution and concentrations of leachate indicator parameters in the shallow zone during the November and December 1993 sampling rounds. Generally, the concentrations of leachate indicator parameters are higher in wells located on the western portion of the landfill as compared to the eastern portion, although there are exceptions to the generalization. Most notably, the concentrations of some leachate indicator parameters, such as chloride and total dissolved solids, in Well SY-7 are at levels more comparable to wells on the western portion of the landfill. This general distribution of parameters relative to the western and eastern portions of the landfill is similar to that described above for VOCs.

Off-site, leachate indicator parameter concentrations are significantly less than on-site concentrations, unlike the total VOC distribution pattern; however, leachate indicator concentrations are similar to the total VOC pattern, being less in Well RB-11S than in Well PK-10S.

Figure 3-16 depicts the distribution and concentrations of metals in the shallow zone during the November and December 1993 sampling rounds. Unlike the general pattern for VOCs and leachate indicator parameters, comparison of wells on the western portion of the landfill to wells on the eastern portion does not reveal an overall generalized pattern as for some metals, the highest concentrations are on the western portion while for other metals, the highest concentrations are on the eastern portion. However, Well SY-3 and to a lesser extent Well SY-2R, which are downgradient of the landfill, generally show higher metals concentrations than other on-site wells. Off-site metals concentrations are substantially less than on-site concentrations, similar to the pattern for leachate indicator parameters, but unlike the total VOC distribution pattern.

3.3.2 <u>Intermediate Zone</u>

Figure 3-11 indicates the distribution and concentrations of VOCs in the intermediate zone in November and December 1993. Because of the limited number of data points on-site, it is not possible to discern whether concentrations are substantially different on the eastern portion of the landfill versus the western part. However, total VOC concentrations on-site are relatively low and are similar to the shallow zone, ranging in concentrations from not detected to 29.2 ug/L.

Off-site (unlike the shallow zone) at Wells RB-11I and PK-10I, total VOCs are slightly higher than on-site. The total VOCs in Well RW-12I is anomalously high with concentrations of 144.5 and 152.3 ug/L (replicate) during the first round, and 259.7 ug/L and 259.4 ug/L (replicate) during the second round. In fact, the total concentration of VOCs in Well RW-12I is several times higher than any well sampled during either the OU-1 RI or the OU-2 RI, except for Well SY-7 in which VOCs are not believed to be landfill-derived.

Figure 3-14 displays concentrations and the distribution of leachate indicator parameters in the intermediate zone in November and December 1993. Concentrations in two of the three on-site downgradient wells (SY-1D and SY-3D) are substantially higher than concentrations in upgradient Well SY-6D, while downgradient Well SY-2D has concentrations similar to that of Well SY-6D. Leachate indicator concentrations in Well SY-3D on the western portion of the landfill are by far the highest of any on-site intermediate well.

Concentrations of leachate indicators in off-site Well PK-10I are substantially higher than in either of the other two off-site wells (RB-11I and RW-12I) and are similar to but less than concentrations in on-site Well SY-3D. Concentrations of leachate indicator parameters in Well RW-12I are in the range of concentrations found in downgradient on-site wells (with the exception of Well SY-3D), while concentrations in Well RB-11I are comparable with those found in upgradient on-site Well SY-6D.

The location of the highest off-site leachate indicator parameter concentrations (Well PK-10I) does not coincide with the location of the highest off-site concentration of total VOCs (Well RW-12I).

Figure 3-17 displays concentrations and the distribution of metals in the intermediate zone in November and December 1993. With the exception of potassium and sodium, metals concentrations in on-site upgradient (Well SY-6D) and downgradient (Wells SY-1D and SY-2D) wells are all very similar. However, downgradient Wells SY-1D, SY-2D, and SY-3D all have substantially higher potassium and sodium concentrations than upgradient Well SY-6D, with Well SY-3D having the highest. Furthermore, nearly all metals concentrations in Well SY-3D are substantially higher than any other on-site well.

Concentrations of metals in all three off-site intermediate wells (PK-10I RB-11I, RW-12I), with the exception of potassium and sodium, are essentially the same and also very similar to concentrations found in upgradient on-site Well SY-6D. However, potassium and sodium concentrations in the off-site wells are the highest in Well PK-10I with sodium levels in Well PK-10I very similar to those at on-site Well SY-3D, while potassium levels are considerably less in Well PK-10I relative to Well SY-3D. Sodium and potassium in Well RW-12I are noticeably less than in Well PK-10I and of a similar level to on-site Well SY-2D. Well RB-11I has sodium and potassium levels lower than all other intermediate wells, including on-site upgradient Well SY-6D.

The location of the highest off-site metals concentrations (Well PK-10I) is the same as the location of the highest off-site leachate indicator parameter concentrations, but does not coincide with the location of the highest off-site concentration of total VOCs (Well RW-12I).

3.3.3 Deep Zone

Figure 3-12 depicts VOC concentrations and distributions in the deep zone in November and December 1993. VOCs were not detected in on-site Well SY-3DD and were detected at 6.5 ug/L or less in Wells PK-10D and RB-11D. Well RW-12D had slightly higher total concentrations ranging from 16.4 ug/L (first sampling round) to 31.9 ug/L (second sampling round).

Figure 3-15 shows the distribution and concentration of leachate indicator parameters in the deep zone in November and December 1993. Concentrations in Wells SY-3DD (on-site) and in Wells RB-11D and PK-10D (both off-site) are all very low, while the concentrations in off-site Well RW-12D are substantially elevated compared to the other two off-site wells. The highest total VOC and leachate indicator concentrations in the deep zone both occur in Well RW-12D.

Similar to the intermediate zone, except for potassium and sodium, metals concentrations in all deep wells (on-site and off-site) are very similar (see Figure 3-18). Sodium and potassium levels in on-site Well SY-3DD and off-site Well RB-11D are also very similar. In off-site Well PK-10D, potassium levels are similar to Wells SY-3DD and RB-11D. However, sodium levels in Well PK-10D are three to five times higher than in Wells SY-3DD and RB-11D. Furthermore, potassium levels in Well RW-12D are two times or more the levels in the other wells, while sodium levels in Well RW-12D are three to ten times the levels in the other deep wells.

The highest total VOC, leachate indicator parameters, and metals concentrations in the deep zone all occur in Well RW-12D.

3.3.4 Comparison of Zones

Total VOC concentrations generally are significantly higher in the intermediate zone as compared to the shallow and deep zones while concentrations are lowest in the deep zone.

Leachate indicator parameter concentrations are also lowest in the deep zone. The shallow and intermediate zones show variable values over the study area with the intermediate zone having the highest concentrations.

Metals concentrations, like for total VOCs and leachate indicator parameters, are lowest in the deep zone. The shallow and intermediate zones show variable values over the study area with the intermediate zone having the highest concentrations.

3.4 CONTAMINANT MIGRATION

As discussed in Sections 3.2.1 (Volatile Organic Compounds) and 3.3 (Contaminant Distribution), the highest total VOC concentrations detected during the OU-2 RI were detected in on-site Well SY-7 (511.7 ug/L [first sampling round] and 547.9 ug/L [second sampling round]). Well SY-7 is a shallow well that only had trace levels of VOCs detected in it during the OU-1 RI. Nearly all of the total VOC concentration in this well during both sampling rounds of the OU-2 RI consisted of benzene, a gasoline component. Well SY-7 is located adjacent to pump islands where gasoline is dispensed to Town vehicles. Beneath the pump islands are two underground storage tanks (USTs) supplying the gasoline. These two USTs were replaced in 1980 due to the age of the steel tanks and the potential for leakage. They were replaced with single wall fiberglass tanks which were last tested in 1992, complying with the requirements of the Nassau County Fire Marshall Article III regulations. These new USTs are now tested at a frequency of every 5 years. Based on this information, it seems that the VOCs detected in Well SY-7 are from the UST(s) that may have leaked in the past. This impact may be localized based on benzene concentrations in other wells.

Aside from Well SY-7, total VOC concentrations in the shallow zone on-site upgradient and downgradient of the landfill and downgradient off-site are relatively low, are very similar, and while they may be landfill derived, they are consistent with regional background degradation of groundwater (see Appendix M for a further discussion of regional degradation of water quality).

Leachate indicator parameter concentrations (Figure 3-13) show impacts to groundwater on-site and these impacts extend off-site to Well PK-10S, but apparently not to Well RB-11S. Impacts at Well PK-10S are consistent with this well being directly downgradient of the area on-site with the highest leachate indicator concentrations (i.e., between Wells SY-3 and SY-2R). The leachate impacts at Well PK-10S, however, are significantly reduced as compared to on-site.

Similar to the leachate indicator parameters, metals concentrations show impacts to groundwater on-site and these impacts extend off-site to Well PK-10S, but not to Well RB-11S. Impacts at Well PK-10S are consistent with this well being directly downgradient of the area on-site with the highest metals concentrations. The metals impacts at Well PK-10S, however, are significantly reduced as compared to on-site. In the shallow zone, several metals were detected above their respective MCLs on-site in several wells. However, off-site the only metals detected above their respective MCLs were iron at concentrations of more than 680 ug/L (the MCL for iron is 300 ug/L) and sodium at concentrations of up to 20,900 ug/L (the MCL for sodium is 20,000 ug/L) in Well PK-10S. As mentioned above, this well is located directly downgradient of the area on-site with the highest metals concentrations.

Examination of the intermediate zone groundwater flow maps (Figures 3-6 and 3-7) and the VOC distribution map (Figure 3-11) shows that Well PK-10I is downgradient of the landfill and the VOCs detected in this well are similar (type and concentration) to VOCs detected at the landfill, although they are slightly higher than total VOC concentrations found on-site. These concentrations are also consistent with regional degradation of groundwater quality.

Well RW-12I is very close to (and possibly outside of) the westernmost limiting groundwater flowline for the landfill. The total concentrations of VOCs detected in this well are nearly an order of magnitude higher than any total VOC concentration found on-site in either the intermediate or the shallow zone. Constituent levels in groundwater would normally be expected to be highest at a source of contamination and then to progressively decrease further downgradient from the source; this is not the situation with Well RW-12I. Given the fact that Well RW-12I is located hydraulically downgradient of, the western-most edge of the landfill, and adjacent to, and hydraulically downgradient of an industrial area located west of the LIRR tracks, the VOCs detected in this well may be derived from a source other than the landfill.

Although the VOCs in Well RB-11I may be landfill derived, the VOCs are consistent with regional background groundwater quality deterioration and, furthermore, Well RB-11I is outside the easternmost limiting groundwater flow line from the landfill.

The MCLs of selected individual VOCs were exceeded during one or both groundwater sampling rounds in all three off-site intermediate wells (PK-10I, RB-11I, and RW-12I) sampled. Except for Well RW-12I, these VOC concentrations are consistent with regionally degraded groundwater quality as discussed in Appendix M.

The VOC concentrations in Well RW-12I were several times higher than in any of the other wells (on-site or off-site) during either sampling round. Given the fact that Well RW-12I is located hydraulically downgradient of the westernmost edge of the landfill (i.e., near the westernmost limiting groundwater flow line), and adjacent to, and hydraulically downgradient of, an industrial area located west of the LIRR tracks, the anomalously high concentrations of VOCs detected in this well may be derived from a source other than the landfill. The physical process that could explain how VOCs could impact Well RW-12I is hydrodynamic dispersion. Dispersion is the tendency of a solute or contaminant "to spread out from the path that it would be expected to follow according to the advective hydraulics of the flow system" (Freeze & Cherry 1979) and it is caused by the process of molecular diffusion and mechanical mixing. Mechanical mixing (mechanical dispersion) is the dominant force behind dispersion. Diffusion generally plays a minor role and is only important when groundwater velocity is extremely slow (not the case at the Syosset Landfill) and is proportional to the concentration gradient, i.e., contaminants spread from areas of high concentrations to areas of lower or no concentration. Diffusion becomes more important with higher contaminant concentrations and can cause the spread of contaminants in all directions. Mechanical dispersion occurs in both the direction of bulk groundwater flow (longitudinal dispersion) and transverse to the direction of bulk flow (transverse dispersion). Dispersion is a microscopic phenomenon that results from the different velocities and tortuous path of groundwater flow within the pore spaces of the aquifer material. The process of dispersion is a mixing process that has a qualitatively similar effect to turbulence in surface water regimes (Freeze & Cherry 1979). Thus, it is possible for contaminants (i.e., VOCs) from near the edge of the landfill to spread laterally via transverse dispersion and impact Wells RW-12I and RW-12D. However, it is also possible that contaminants (i.e., VOCs) in Wells RW-12I and RW-12D may be derived from a source other than the landfill by the same process. The same rationale regarding limiting groundwater flow lines and dispersion above generally applies to Well RB-11I, but this cluster is clearly outside the easternmost limiting groundwater flow line (by almost 400 feet) and VOCs detected in this well are even more likely to be derived from a source other than the landfill (i.e., general regional background groundwater quality deterioration).

It is apparent from the data shown on Figure 3-14 that elevated concentrations of leachate indicator parameters exist off-site at Wells PK-10I and RW-12I, suggesting that the landfill has affected groundwater at these locations. The greatest effects are at Well PK-10I, followed by Well RW-12I. Well RB-11I does not show landfill effects based on leachate indicator parameters. Although landfill leachate effects are apparent at Well RW-12I, as stated above, this does not rule out the possibility of another source causing elevated VOC concentrations at this well.

It is apparent from Figure 3-17 that metals concentrations, especially potassium and sodium, show impacts to the intermediate zone on-site.

Metals impacts (potassium and sodium only) to the intermediate zone also extend off-site to Well PK-10I and to a lesser extent to Well RW-12I. Based on metals data, Well RB-11I does not appear to be affected by the landfill and, in fact, shows metals concentrations similar to or less than those at on-site upgradient Well SY-6D. In the intermediate zone, several metals were detected above their respective MCLs on-site, but, off-site, the only metal detected above its MCL was sodium in Well PK-10I (176,000 ug/L to 237,000 ug/L).

A review of Figures 3-12 (VOCs), 3-15 (leachate indicator parameters), and 3-17 (metals) in conjunction with the deep flow maps (Figures 3-8 and 3-9) indicates that the deep zone has not been impacted by the landfill on-site (Well SY-3DD) or at off-site Well RB-11D. The leachate indicator parameter concentrations are low in these wells and reflect ambient (unimpacted) water quality. The total concentration of VOCs in this off-site well ranges from 0.4 ug/L to 1.3 ug/L with most of the detections being estimated values. Because these values are low and predominately estimated, and because VOCs were not detected in the deep on-site well (SY-3DD), these VOC detections appear to be related to regional degradation of water quality and are not landfill-derived.

Similarly, metals concentrations in Wells SY-3DD (on-site) and RB-11D (off-site) are very similar and do not suggest an effect from the landfill. Although total VOCs are also low in Well PK-10D (1.9 ug/L to 6.5 ug/L) and leachate indicator parameter concentrations are also low in this well, sodium concentrations in Well PK-10D are three to five times higher than in Wells SY-3DD (on-site) and RB-11D (off-site), suggesting an effect from the landfill at this well.

Leachate indicator parameter concentrations at off-site Well RW-12D indicate impacts to the deep zone at this location from the landfill. VOCs in this well may be derived from the landfill; however, the concentrations (16.4 ug/L to 31.9 ug/L) are not inconsistent with regional degradation of water quality. Metals data (sodium and potassium only) show levels substantially greater than concentrations in other deep wells suggesting a landfill effect at this well from metals.

In the deep zone, the only on-site deep well (SY-3DD) had concentrations of iron exceeding the MCL of 300 ug/L for both sampling rounds, but these exceedences apply only for the total analysis not the dissolved analysis. Antimony was also detected in Well SY-3DD above its MCL of 6 ug/L during the first sampling round (25 ug/L) for the total analysis only. Off-site, iron was detected above the MCL in Wells RB-11D (total analysis only for both sampling rounds [975 ug/L and 958 ug/L]) and RW-12D (total analysis only for the second sampling round [552 ug/L]). Sodium was the only other metal to be detected in the off-site deep wells above the MCL. This metal was detected above the MCL for total and dissolved analyses in Wells PK-10D during the first sampling round at concentrations of up to 22,900 ug/L and in RW-12D during both sampling rounds at concentrations of up to 66,500 ug/L.

In summary, landfill-affected groundwater has migrated to two of the three off-site well cluster locations (Town Park [PK] wells, and Roadway [RW] property wells). Due to the significantly steeper vertical hydraulic gradient with respect to the relatively flat horizontal hydraulic gradient, landfill-derived contaminants have moved off-site in groundwater into the intermediate zone; the greatest impacts off-site are in the intermediate zone.

3.5 FATE AND TRANSPORT OF CONTAMINANTS

This section evaluates the mechanisms that control the migration and fate of contaminants in the subsurface. In this section, potential routes of migration through the vadose and phreatic (saturated) zones of the Magothy aquifer are discussed, followed by descriptions of the physical, chemical, and biological processes that affect the fate and transport of contaminants. In addition, an initial analysis of exposure pathways is presented to provide insight on potential risks posed by the migration of VOCs.

3.5.1 Potential Routes of Migration

Generally, when contaminants are released at the surface or in the shallow subsurface, they may migrate vertically downward through the vadose, or unsaturated zone, until they reach the water table, which represents the upper surface of the phreatic, or saturated, zone. When dissolved contaminants reach the water table, groundwater flow dynamics will be the primary influence on their migration.

3.5.1.1 Vadose Zone

During precipitation events, rainfall percolates through the landfill and dissolves contaminants which then migrate vertically downward under the influence of gravity through the vadose zone. This contaminated water moves vertically downward through the vadose zone until the water-table zone is encountered. Near the Syosset Landfill, the vadose zone consists of the coarse sand deposits of the Upper Glacial Formation.

3.5.1.2 Phreatic Zone

In the Syosset Landfill study area, the phreatic zone (exclusive of the Raritan Formation which is not the subject of the study) consists of the Magothy aquifer, which is characterized as having a relatively high permeability (approximately 50 feet per day), but lower permeability than the Upper Glacial aquifer (approximately 270 feet per day) (Franke and Cohen 1972). In the unconsolidated deposits of the Magothy aquifer, groundwater moves through the interstitial porespaces. Physical processes that affect the transport of dissolved contaminants in the phreatic zone are advection, dispersion, and diffusion. Chemical factors inherent to these processes will be discussed below (Characteristics and Behavior of Contaminants).

3.5.1.3 Advection

The process by which dissolved contaminants are transported by the bulk movement of flowing groundwater is known as advection. The path of migration for dissolved contaminants in groundwater near the landfill is therefore primarily in the direction of groundwater flow. As discussed in the Hydrogeology section, groundwater flow in the vicinity of the site is primarily downward and to the north.

3.5.1.4 Dispersion and Diffusion

Dispersion and diffusion are processes that spread dissolved constituents in groundwater. The spread of dissolved contaminants from the Syosset Landfill is generally due to dispersion. Dispersion is dependent on groundwater velocity and it usually occurs at much higher rates than diffusion, which is dependent on solute concentration gradients. Dispersion is a mixing process that occurs at the microscale because of the nonlinear movement (or tortuous path) of groundwater through the aquifer material. This nonlinear movement results from heterogeneities in hydraulic properties of the geologic materials, which cause contaminants to move faster through some parts of the saturated material than through others. The amount of dispersion varies with groundwater velocity and is greatest in the direction of groundwater flow. Thus, dispersion in directions transverse to flow is typically much less than dispersion in the direction of flow (Freeze and Cherry 1979). At the Syosset Landfill, the rate of groundwater flow is relatively slow in the horizontal direction because of the very flat horizontal hydraulic gradient; it is also slow in the vertical direction because the very low vertical permeability (due to the presence of lower permeability clay stringers, lenses and layers) offsets the higher downward hydraulic gradient (as compared to the horizontal hydraulic gradient).

Concentration gradients are the driving mechanism for the diffusion of contaminants in groundwater. Diffusion in solutions is the process whereby ionic or molecular constituents move in the direction of their concentration gradients or from areas of high concentrations to areas of low or no concentrations. This process stops only when chemical equilibrium occurs (the concentration gradients become nonexistent). Typically, this process is significant only where groundwater velocities are extremely slow (not the case at the Syosset Landfill).

3.5.2 Characteristics and Behavior of Contaminants

Natural processes that affect the migration of contaminants in soil/water systems are sorption, volatilization, and transformation.

3.5.2.1 Sorption

Sorption is a physical process that retards the migration of contaminants in the subsurface. Organic compounds, such as VOCs, tend to partition between the groundwater and any solid organic carbon present in the aquifer material, and inorganic compounds tend to partition between the groundwater and clay minerals. Sorption is the reversible attachment of contaminants to solids or colloids in the subsurface. The type of attachment and the rate of sorption is dependent upon the type of contaminants and the solid/colloid. Sorption is also dependent upon the amount of available surface area or sites on the solid/colloid surface to which the contaminants may sorb. Once all of the available sites have been utilized, no more sorption will occur.

The rate of contaminant sorption is also influenced by the amount of organic carbon or clay minerals that is in direct contact with groundwater as it migrates through the pore spaces of the aquifer. If the carbon or clay is bound within the aquifer matrix or occurs at "dead end" pore spaces, then it will have little, if any, effect on the sorption of dissolved VOCs or inorganics. In general, sorption can be a significant process in controlling the rate of migration of contaminants.

The mobility of an organic compound can be evaluated by examining its aqueous solubility and the log of the organic carbon partition coefficient (log K_{oc}). Aqueous solubility is a measure of the amount of a compound that will dissolve in a unit volume of water; more soluble compounds are generally more mobile. The log K_{oc} is a measure of the relative affinity of a compound for an organic medium (organic carbon) versus an aqueous medium (water); the lower the log K_{oc}, the more mobile the compound.

The mobility of metals is assessed by examining the solubility of the metal, the relative propensity of the metal to form insoluble compounds, and the ability of the metal to sorb (bind) to clays (ion exchange). Because of the range of possible reactions, the mobility of metals is usually expressed qualitatively (i.e., high, medium, low).

3.5.2.2 Volatilization

Volatilization is a process generally associated with organic compounds or ammonia and refers to the transfer of compounds from the dissolved phase to the gaseous (vapor) state. Volatilization is assessed by examining the Henry's law constant for each compound. A smaller value of the Henry's law constant correlates with a less volatile compound. In the vadose zone, VOCs and ammonia can partition into the vapor phase (volatilize) and be transported vertically and horizontally. VOCs and ammonia can also volatilize from the groundwater at the water table and migrate into the vadose zone in the vapor phase. Except for mercury, volatilization is not an important process for the transport of metals and inorganic anions because of their low vapor pressures.

3.5.2.3 Transformation

Many of the VOCs detected in groundwater at the Syosset Landfill may represent breakdown products of other, more chlorinated VOC molecules. This breakdown, or transformation, can be biological or chemical (abiotic). Inorganic chemicals may also undergo transformation depending on the chemical composition of the porous media (aquifer material), the chemical composition of ambient groundwater, and the presence of microorganisms.

The chlorinated aliphatic VOCs (for example, trichloroethene, tetrachloroethylene, cis- and trans-1,2-dichloroethene, 1,1-dichloroethene, and 1,1-dichloroethane) are susceptible to biological transformation, but the rate of transformation can be very slow, particularly for TCE. Microorganisms in the subsurface can transform chlorinated VOCs and inorganic chemicals by the processes of oxidation or reduction. This transformation results in the production of another VOC or a net loss of VOCs from the groundwater. Generally, chlorinated aliphatic VOCs are reduced sequentially by hydrogenolysis (replacement of chlorine atoms by hydrogen) under strictly anaerobic conditions (Bechtel Environmental, Inc. 1990). For example, TCA may be dechlorinated to 1,1-dichloroethane (1,1-DCA) and PCE may be sequentially dechlorinated to TCE and 1,2-dichloroethene. Reduction of chlorinated alkanes (for example, 1,1-DCA or TCA) can also involve the loss of two halogens (dihalo-elimination), resulting in conversion to an alkene. An example is the conversion of 1,2-dichloroethane to ethene (Vogel et al. 1987). Although hydrogenolysis occurs only under anaerobic conditions, dihalo-elimination can occur under either aerobic or anaerobic conditions. Bacteria can also oxidize some chlorinated compounds. For example, bacteria can transform TCE to biodegradable hydrolysis products (alcohols) in a methane-enriched groundwater environment (Henson, Yates et al. 1988).

Abiotic transformation mechanisms of significance to chlorinated aliphatics are substitution and dehydrohalogenation. Substitution reactions include hydrolysis, which produces an alcohol. An example of dehydrohalogenation is the conversion of TCA to 1,1-dichloroethene (Vogel et al. 1987). Abiotic transformations are generally much slower than biological transformations.

Transformation rates for VOCs and inorganic chemicals are typically estimated from laboratory or small-scale field experiments. Indirect evidence for transformation is obtained from the relative distributions of constituents. Concentration ratios (for VOCs for example, PCE:TCE) are often examined to determine whether transformation has occurred. Application of this technique is limited when there is more than one source location, when different commercial products of varying grades of purity may have been released, and when the site-specific contaminants migrate at significantly different rates because of different retardation factors (e.g., sorption rates). Nonetheless, it is important to recognize the potential for transformations to occur because transformation can have a significant overall effect on the migration of contaminants in the subsurface.

3.5.2.4 Precipitation - Oxidation Reduction

Inorganic contaminants in groundwater can be removed by precipitation. The law of mass action, which states that the rate of a chemical reaction is proportional to the masses of the precipitating substances (Hem 1985), can be used to analyze which chemical equilibria may occur. In impacted aquifers, static species may precipitate as inorganic contaminants mixed with native groundwater.

Many inorganic elements can exist in different oxidation states and can undergo oxidation/reduction (redox) reactions as the plume changes from anaerobic to aerobic conditions. Some of the redox reactions are mediated by microorganisms. As the oxidation state of an element is changed, it may then precipitate as it mixes with groundwater.

3.5.3 Analysis of Exposure Pathways

Because the Syosset Landfill capping program is in progress in accordance with 6 NYCRR Part 360, and based on the results of landfill gas monitoring that indicate that landfill gases have not migrated off-site, the only potential route of exposure is the groundwater. The nearest active public supply wells are owned by the Jericho Water District (N-198, which is screened from 566 to 616 feet below land surface, and N-199, which is screened from 544 to 600 feet below land surface). These wells are located approximately 2 miles downgradient (north) of the landfill. The contaminants of concern have been defined as those chemical constituents (VOCs) that were detected above MCLs in on-site and off-site monitoring wells during the OU-1 and OU-2 RIs. It is highly improbable that these VOCs will reach public supply wells N-198 and N-199 at detectable concentrations, even assuming that these wells are within the groundwater flow path from the landfill. This analysis is based on the relatively low concentrations of these constituents, the distance of the wells from the landfill, and the mitigating effects of dispersion and biochemical processes discussed above. The risks posed by the contaminants of concern will be addressed in more detail in a future risk assessment report.

3.6 POTENTIAL IMPACTS FROM RECHARGE BASINS

3.6.1 Leachate Indicator Parameters

The concentrations and distribution of leachate indicator parameters observed during the OU-2 RI in the on-site and off-site groundwater monitoring wells are consistent with a plume of impacted groundwater derived from the Syosset Landfill, that is moving downward, and extending off-site. This contaminant profile correlates well with the horizontal and vertical groundwater flow directions observed during the OU-2 RI. As stated in the Contaminant Distribution section (3.3) of the OU-2 RI, the concentrations of leachate indicator parameters detected in the on-site wells are similar to the concentrations detected in the deeper (intermediate) off-site wells. This similarity, therefore, lacks the variability in contaminant concentrations that would otherwise indicate a contribution of these constituents from another source, such as one of the stormwater basins near the site.

On Long Island, stormwater runoff, which is mainly from roads, comprises approximately 20 percent of the recharge to the underlying aquifers, and is collected in the more than 2,000 stormwater basins scattered throughout Nassau and Suffolk Counties (Long Island Regional Planning Board 1978). The potential impacts of stormwater runoff that collects in Long Island recharge basins was addressed in a major study conducted for the Long Island Regional Planning Board (LIRPB): Long Island Segment of the Nationwide Urban Runoff Program (LIRPB 1982). It was concluded in the 1982 LIRPB report that "with the exception of lead and chloride, the concentrations of inorganic chemicals measured in stormwater runoff do not have the potential to adversely affect groundwater quality" (LIRPB 1982).

3.6.2 Volatile Organic Compounds

As discussed in Appendix M (Regional Background Groundwater Quality), except for Well RW-12I, the VOC concentrations detected in on-site and off-site monitoring wells are consistent with regionally degraded background groundwater quality conditions for an area with land use such as near the site.

3.7 OFF-SITE SUBSURFACE GAS

A summary of the results of the OU-2 landfill gas monitoring is presented in Table 3-5. These data indicate that landfill gases were detected at relatively elevated concentrations (primarily methane) in one of the gas monitoring wells in the southwestern part of the landfill (G-7) and are consistent with the findings of the OU-1 RI. Landfill gas was not detected in the off-site gas monitoring wells and does not appear to be migrating off-site. (See Appendix K for the results of gas monitoring conducted separately by LKB as part of the OU-1 Remedial Design Program.)

4.0 CONCLUSIONS

Based on the results of the OU-2 RI, the following conclusions were developed.

4.1 OFF-SITE GROUNDWATER STUDY

1. Hydrogeologic conditions encountered during the OU-2 RI are generally consistent with conditions found during the OU-1 RI and published data.

2. The regional potentiometric surface map of the shallow zone of the Magothy Formation indicates that the position and orientation of the regional groundwater divide is virtually the same as it was during the OU-1 RI and is south of the landfill. Regional shallow groundwater flow was documented to be in a north-northeasterly direction near the site, which is also consistent with the OU-1 RI findings.

3. The site-specific horizontal direction of groundwater flow in the shallow, intermediate, and deep zones of the Magothy Formation is generally to the north. However, in the shallow zone on-site, groundwater also flows from the west and east parts of the site toward the center of the landfill before moving north toward the Town Park.

4. The direction of the vertical hydraulic gradient is predominately downward in the study area. The vertical hydraulic gradient is approximately four times steeper than the horizontal hydraulic gradient; this is consistent with the proximity of the site to the regional groundwater divide.

5. Water-quality data for Cluster 11 indicate that, based on concentrations of typical landfill leachate indicator parameters and metals, the landfill has not affected water quality at this location, which is consistent with this cluster being located considerably outside the easternmost limiting flow line from the landfill. Based on this information and the fact

that VOCs detected in this cluster are consistent with regional background groundwater quality deterioration, the VOCs here are likely not landfill derived.

6. Water-quality data for Cluster 10, which is directly downgradient of the landfill, show elevated levels of typical landfill leachate indicator parameters, as well as elevated metals concentrations, indicating landfill effects at this location. While VOCs at this cluster may be landfill derived, they are consistent with regional background groundwater quality deterioration.

7. Water-quality data for Cluster 12 show that elevated levels of typical landfill leachate indicator parameters, as well as elevated metals concentrations, are present at this cluster (which is approximately at the westernmost limiting flow line from the landfill), indicating landfill effects at this location. While VOCs in Well RW-12D may be landfill derived, the concentrations here are also consistent with regional background groundwater quality deterioration. VOCs in Well RW-12I appear to be from a source other than the landfill. This is based on an assessment of available information gathered as part of the OU-1 RI and OU-2 RI, including on-site and off-site groundwater quality data, Industrial Survey data, regional hydrogeological data, and soil boring data obtained during the OU-1 RI. This conclusion is based on the following:

- The elevated concentrations of PCE and TCA in Well RW-12I do not appear to be from the landfill and may be caused by a more recent or currently active source since the ratio of breakdown products versus PCE and TCA at Well RW-12I (see Appendix P for further details) show a mix dominated by parent compounds not breakdown products, which is the converse of other off-site wells and the fact that VOCs are nearly 10 times higher in Well RW-12I than on-site, not what would be expected if the landfill was the source. Furthermore, the concentrations of leachate indicator parameters in Wells RW-12I and RW-12D are very similar, while VOCs in Well RW-12I are nearly 10 times greater than in Well RW-12D. This disparity between VOCs and leachate concentrations suggests that the VOCs in Well RW-12I are due to a source other than the landfill.

- The industrial area survey (see Appendix O for details) identified five off-site properties which are potential sources of the VOCs detected in Well RW-12I. These properties are located on Robbins Lane and Aerial Way, between 1,400 and 2,100 feet southwest of Well RW-12I. Each of these properties used one or more of the VOCs detected in Well RW-12I, and two properties, Space Machine Corp. and Spiegel Associates, had releases which required soil remediation. In addition, these properties likely discharged wastewater to on-site septic systems and leaching fields prior to the construction of sewers in the 1980s. It is, therefore, reasonable to expect that releases of VOCs to groundwater have occurred at one or more of these properties.

- Regional hydrogeologic data indicate that the potential off-site sources identified in the industrial area survey are located hydraulically upgradient of Well RW-12I, and are situated between the well and the regional groundwater divide. Specifically, the regional horizontal flow direction for the Magothy Aquifer in the vicinity of the Syosset Landfill is northeast, and the regional groundwater divide is located approximately 3,100 feet south of Well RW-12I and is oriented west to east (Figure 3-3 of OU-2 RI Report). Moreover, because the vertical gradient is three to five times the horizontal gradient (Section 3.1.4 of OU-2 RI Report) in the vicinity of the landfill, releases from these potential off-site sources could migrate to the intermediate zone of the Magothy Aquifer at Well RW-12I.

- Data from on-site soil borings and monitoring wells indicate that the landfill is not the source of the elevated levels of VOCs detected in Well RW-12I. Specifically, if the landfill was the source of these VOCs, it is expected that substantial residual contamination would be present. Instead, these VOCs (specifically, PCE, TCA, TCE, 1,1-DCE, and 1,1-DCA) were only detected at low concentrations (5 to 9 ppb) in three of 44 samples from 10 soil borings, including samples of the fill and the soil directly underlying the landfill (Tables 16 and 17 of the OU-1 RI Report). Similarly, these VOCs were only detected at low concentrations (0.1J to 30 ppb) in 27 of 56 groundwater samples from 16 on-site monitoring wells (Table 9 of the OU-1 RI Report, Table 1 of the OU-2 RI Report, and Table 1 of Appendix P).

- In summary, we can conclude that based on: the lack of degradation of PCE and TCA in Well RW-12I; the identification of properties within the previously unsewered Industrial Park who used and/or are using PCE and TCA and have had reported releases; regional hydrogeologic data indicating the Industrial Park is upgradient of Well RW-12I; and the low levels of these compounds found on-site in both the soil and groundwater during the OU-1 RI, the high concentrations of VOCs (particularly PCE and TCA) in Well RW-12I appear to be from a source(s) located in the Industrial Park west of the LIRR tracks.

In conclusion, based on leachate indicator concentrations and metals concentrations, landfill-impacted groundwater has migrated to two of the three off-site well cluster locations (Town park and Roadway property); however, the recharge basin location apparently does not show landfill impacts based on these parameters. The greatest impacts off-site are in the intermediate zone of the Magothy Formation. The significantly steeper vertical hydraulic gradient, as compared to the horizontal gradient, has resulted in landfill-derived contaminants moving off-site into the intermediate zone (Wells PK-10I and RW-12I). The total concentrations of VOCs in off-site intermediate wells at the Town Park (PK-10I) and at the Recharge Basin (RB-11I) are consistent with the total VOC concentrations detected in the on-site shallow monitoring wells. These concentrations are also consistent with regional background degradation of groundwater quality. In particular, this is true for Well RB-11I, which is located outside the easternmost limiting groundwater flowline from the landfill. The total concentration of VOCs in RW-12I is anomalously high, several times higher than the concentrations encountered in any other monitoring well during either the on-site or off-site RIs. The high concentrations of volatile organic compounds (particularly PCE and TCA) in Well RW-12I appear to be from a source(s) located in the Industrial Park west of the LIRR tracks. This conclusion is based on the fact that RW-12I is located hydraulically downgradient of the westernmost edge of the landfill and is located hydraulically downgradient of, and adjacent to, an industrial area located west of the LIRR tracks. This conclusion is further supported by the lack of degradation of PCE and TCA in Well RW-12I; the identification of properties within the previously unsewered Industrial Park who used and/or are using PCE and TCA and have had reported releases; regional hydrogeologic data indicating the Industrial Park is upgradient of Well RW-12I; and the low levels of these compounds found on-site in both the soil and groundwater during the OU1 RI.

4.2 SUBSURFACE GAS STUDY

1. Landfill gas (primarily methane) was detected at relatively elevated concentrations in one of the gas wells on the southwestern part of the landfill and is consistent with the findings of the OU-1 RI. Landfill gas was not detected in the three new off-site subsurface gas monitoring wells and does not appear to be migrating off-site. (See Appendix K for the results of gas monitoring conducted separately by LKB as part of the OU-1 Remedial Design Program.)

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TABLES

Table 2-1. Summary of Field and Laboratory Measurements of Leachate Parameters of Groundwater Samples Collected During Drilling of Exploratory Borings SY-3DD and PK-10D During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

			Primary Leachate Parameters			Secondary Leachate Parameters			
Sample Depth (feet)	Date Sampled	Action Level (a):	Alkalinity (mg/L) 11	Total Hardness (mg/L) 43	Ammonia (mg/L) 0.12	Conductivity (umhos/cm) 217	pH (units) 5.75	Chloride (mg/L) 19	Temperature (Celcius) 14.5
<u>Well SY-3DD</u>									
118	11/5/92		(c)	39	23	280	5.05	28	15
137	11/5/92		190	140	21	640	6.35	36	15
158	11/6/92		390	170	71	960	6.35	54	15
179	11/6/92		840	380	160	1,600	6.95	120	15
192	11/6/92		630	280	120	1,200	7.35	26	15
218	11/6/92		910	300	420	2,000	7.85	22	15
239	11/9/92		890	400	150	2,400	7.35	100	15
256	11/9/92		540	330	200	1,900	7.05	180	15
279	11/9/92		440	310	180	1,900	7.10	240	15
299	11/9/92		500	280	160	1,700	6.10	270	15
318	11/10/92		430	270	220	2,300	6.55	490	15
335	11/17/92		360	200	(b)	2,200	7.87	390	15
355	11/17/92		31	220	(b)	1,200	7.90	190	15
355 (d)	11/17/92		31.7	211	11.4	NA	NA	200	NA
375	11/17/92		38	(c)	(b)	1,600	4.80	(c)	15
375 (d)	11/17/92		41.6	231	19.1	NA	NA	271	NA
395	11/17/92		70	210	(b)	1,200	7.20	230	15
395 (d)	11/17/92		76.4	174	21.0	NA	NA	222	NA
417	11/18/92		48	250	5.0	1,500	7.80	270	15
437	11/18/92		52	240	4.0	1,200	7.70	220	15

See last page for footnotes.

Table 2-1. Summary of Field and Laboratory Measurements of Leachate Parameters of Groundwater Samples Collected During Drilling of Exploratory Borings SY-3DD and PK-10D During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

			Primary Leachate Parameters			Secondary Leachate Parameters			
Sample Depth (feet)	Date Sampled	Action Level (a):	Alkalinity (mg/L) 11	Total Hardness (mg/L) 43	Ammonia (mg/L) 0.12	Conductivity (umhos/cm) 217	pH (units) 5.75	Chloride (mg/L) 19	Temperature (Celcius) 14.5
Well SY-3DD (Continued)									
457	11/18/92		80	240	2.4	1,100	7.70	180	15
480	11/25/92		66	180	2.6	920	7.70	150	15
500	11/30/92		15	23	0.41	56	7.40	15	15
520	12/1/92		9.7	9.0	0.29	58	7.20	4.9	15
520 (e)	12/1/92		12	6.9	<0.05	NA	NA	6	NA
520**	12/1/92		10	8.1	0.16	57	7.20	4.8	15
540	12/1/92		13	12	<0.06	52	6.80	5.2	15
PK-10D									
120	12/15/92		(b)	(b)	(b)	(b)	(b)	(b)	(b)
140	12/15/92		5.5	59	<0.06	240	7.45	14	15
160	12/15/92		13	59	<0.06	240	7.25	17	15
180	12/15/92		37	39	<0.06	180	7.15	14	15
200	12/15/92		39	92	<0.06	340	5.25	18	15
220	12/15/92		(b)	(b)	(b)	(b)	(b)	(b)	(b)
240	12/15/92		44	78	<0.06	400	5.45	42	15
260	12/16/92		(c)	(c)	(c)	(c)	(c)	(c)	15
280	12/16/92		37	93	0.17	500	7.55	47	15
280(e)	12/16/92		33.7	92.2	0.65	NA	NA	46.8	NA
300	12/16/92		18	63	0.08	300	7.10	26	15
300 (d)	12/16/92		16	58	0.07	290	7.15	23	15

See last page for footnotes.

Table 2-1. Summary of Field and Laboratory Measurements of Leachate Parameters of Groundwater Samples Collected During Drilling of Exploratory Borings SY-3DD and PK-10D During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

			Primary Leachate Parameters			Secondary Leachate Parameters			
Sample Depth (feet)	Date Sampled	Action Level (a):	Alkalinity (mg/L) 11	Total Hardness (mg/L) 43	Ammonia (mg/L) 0.12	Conductivity (umhos/cm) 217	pH (units) 5.75	Chloride (mg/L) 19	Temperature (Celcius) 14.5
PK-10D (Continued)									
300(e)	12/16/92		15	58.6	0.10	NA	NA	23.3	NA
320	12/16/92		66	47	6.2	750	7.65	68	15
340	12/16/92		250	220	19	1,670	7.45	(e)	15
360	12/17/92		370	310	24	2,000	7.55	360	15
380	12/18/92		220	278	19	2,100	7.90	439	15
400	12/18/92		150	210	9.9	1,600	7.70	350	15
420	12/21/92		46	120	8.6	720	7.15	140	15
440	12/21/92		6.6	75	<0.06	400	6.25	76	15
460	12/22/92		6.8	160	0.08	920	7.10	160	15
479	12/28/92		6.1	7.6	0.07	50.6	6.80	11.2	15
479(e)	12/28/92		<1.0	62.2	0.09	NA	NA	7.53	NA
499	12/28/92		9.1	16	0.07	74	7.0	13	15
499(e)	12/28/92		9.9	12.8	0.51	NA	NA	14.5	NA
Hydrant Water	11/6/92		39	47	30	200	4.90	16	15
Hydrant Water	12/1/92		45	33	0.14	180	8.70	15	15
Hydrant Water	12/17/92		31	13	<0.06	160	8.20	8.7	15

mg/L Milligrams per liter.
umhos/cm Micromhos per centimeter.
(a) Based on statistical analysis of background water-quality data.
(b) Probe malfunction.
(c) Not enough sample collected for all analyses.
(d) Replicate sample analyzed by IEA, Inc., Monroe, Connecticut.
(e) Replicate sample analyzed by EcoTest Laboratories, Inc., North Babylon, New York.
** Field replicate.
NA Not analyzed.

Table 2-2. Summary of Construction Details of New and Preexisting Monitoring Wells Installed at and near the Syosset Landfill, Syosset, New York.

Well Designation	Completion Date	Well Diameter (inches)	Total Depth (feet below land surface)	Screen Setting (feet below land surface)	Interval Gravel Packed (feet below land surface)	Interval Sealed With Bentonite Pellets (feet below land surface)	Interval Sealed With Bentonite Slurry/Volclay (feet below land surface)	Height of Measuring Point (a) (relative to land surface)	Elevation of Measuring Point (b) (feet above mean sea level)	Well Casing and Screen Material
SY-1 (c)	10/19/82	2	135	125 - 135 (d)	35 - 135 (d)	34 - 35	8 - 34 (e)	-0.15	194.52	Black steel
SY-1D	2/2/88	4	218	182 - 192	179 - 218	177 - 179	2 - 177	+2.31	197.36	PVC
SY-2R	2/12/88	4	150	115 - 125	112 - 150	110 - 112	2 - 110	+1.95	187.12	PVC
SY-2D	2/9/88	3	215	190 - 200	187 - 215	185 - 187	2 - 185	+2.18	186.33	PVC
SY-3 (c)	10/20/82	2	145	135 - 145	47 - 145 (d)	45 - 47	4 - 45 (e)	-0.50	191.38	Black steel
SY-3D	2/25/88	3	240	189 - 199	184 - 240	181 - 184	2 - 181	+2.45	194.74	PVC
SY-3DD	**12/9/92**	**2**	**540**	**530 - 540**	**517 - 540**	**512 - 517 (f)**	**2 - 512**	**0**	**194.23**	**PVC, stainless steel**
SY-4	10/20/82	2	153	143 - 153 (d)	57 - 153 (d)	54 - 57	4 - 54 (e)	-0.20	193.32	Black steel
SY-5 (c) (h)	10/20/82	2.5	135	125 - 135 (d)	46 - 135 (d)	44 - 46	5 - 44 (e)	+4.20	188.07	Galvanized steel
SY-6 (c)	10/19/82	2	145	135 - 145 (d)	31 - 145 (d)	28 - 31	5 - 28 (e)	-0.10	185.92	Black steel
SY-6D	3/9/88	4	215	195 - 205	192 - 215	190 - 192	3 - 192	-0.30	185.60	PVC
SY-7 (c)	10/21/82	2	145	135 - 145 (d)	52 - 145 (d)	49 - 52	5 - 49 (e)	-0.25	197.46	Black steel
SY-8	12/19/87	4	142	127 - 137	125 - 142	122 - 125	2 - 122	+2.25	195.84	PVC
SY-9	1/29/88	4	140	110 - 120	107 - 140	105 - 107	2 - 105	-0.70	199.41	PVC
W-3	11/10/87	2	120	105 - 115	102 - 120	100 - 102	2 - 100	+2.63	190.61	PVC
W-4 (h)	11/18/87	2	120	104 - 114	102 - 120	100 - 102	2 - 100	+2.56	192.82	PVC
PK-10S	**3/25/93**	**4**	**149**	**139 - 149**	**5 - 149**	**(i)**	**(i)**	**-0.40**	**188.70**	**PVC, stainless steel**
PK-10I	**4/14/93**	**4**	**362**	**352 - 362**	**346.5 - 363**	**341.5 - 346.5 (f)**	**2 - 341.5 (g)**	**0**	**187.62**	**PVC, stainless steel**
PK-10D	**12/31/92**	**4**	**499**	**489 - 499**	**477 - 500**	**472 - 477 (f)**	**2 - 472 (g)**	**0**	**188.23**	**PVC, stainless steel**
RB-11S	**8/26/93**	**4**	**143**	**133 - 143**	**120 - 144**	**115 - 120 (f)**	**2 - 115 (g)**	**0**	**189.91**	**PVC, stainless steel**
RB-11I	**8/19/93**	**4**	**358.5**	**348.5 - 358.5**	**339 - 359**	**333 - 339 (f)**	**2 - 333 (g)**	**0**	**190.32**	**PVC, stainless steel**
RB-11D	**8/9/93**	**4**	**503**	**493 - 503**	**487 - 509**	**480 - 487 (f)**	**2 - 480 (g)**	**0**	**190.60**	**PVC, stainless steel**
RW-12I	**10/7/93**	**4**	**360**	**350 - 360**	**338 - 364**	**330 - 338 (f)**	**2 - 330 (g)**	**0**	**197.76**	**PVC, stainless steel**
RW-12D	**9/27/93**	**4**	**500**	**490 - 500**	**482 - 508**	**475 - 482 (f)**	**2 - 482 (g)**	**0**	**197.72**	**PVC, stainless steel**

(a) The measuring point of each well is the top of the well casing.
(b) Survey performed to U.S. Geological Survey (USGS) datum.
(c) Well installed during the ERM-Northeast site investigation.
(d) It appears that this interval consists of formation collapse.
(e) Information not available as to whether grout or backfill (drill cuttings) was used to fill the annular space in this interval.
(f) #00 Sand used above J. Morie, Co. No. 1 Sand.
(g) Volclay grout sealant used (composed of 100 percent bentonite).
(h) Destroyed.
(i) Well PK-10S was installed in the initial PK-10I borehole, which had collapsed at 328 feet due to unstable formation; PK-10S was constructed with the gravel pack extending to within 5 feet of land surface to allow for the gravel pack to stabilize before a permanant seal was installed. PK-10S is currently sealed at the land surface with a steel plate and rubber gasket. Gravel can be monitored/added through a 1-inch diameter access port.
PVC Polyvinyl chloride.

Information for monitoring wells installed during the second operable unit remedial investigation is indicated in bold letters.

Table 2-3. Summary of Survey Data, Syosset Landfill, Syosset, New York.

Well	Measuring Point Elevation (feet mean sea level)	New York State Plane Coordinate North	New York State Plane Coordinate East
SY-1	194.52	**209495.76**	**2136314.26**
SY-1D	197.36	**209481.59**	**2136330.22**
SY-2R	**187.12**	**210037.91**	**2135556.27**
SY-2D	**186.33**	**210026.07**	**2135587.51**
SY-3	191.38	**210242.45**	**2135067.38**
SY-3D	194.74	**210247.23**	**2135050.56**
SY-3DD	**194.23**	**210271.1702**	**2135002.6670**
SY-4	193.32	**209431.71**	**2134825.53**
SY-5	188.07	**209352.90**	**2135546.93**
SY-6	**185.92**	**208841.74**	**2135686.91**
SY-6D	185.60	**208859.37**	**2135654.79**
SY-7	**197.46**	**208673.74**	**2136465.21**
SY-8	195.84	**210046.93**	**2134479.52**
SY-9	199.41	**209095.12**	**2136455.36**
W-3	**190.61**	**210002.45**	**2135019.45**
W-4	192.82	**209339.17**	**2135850.95**
PK-10S	**188.70**	**210812.2387**	**2135658.6336**
PK-10I	**187.62**	**210720.9698**	**2135615.3518**
PK-10D	**188.23**	**210803.3541**	**2135650.1901**
RB-11S	**189.91**	**210943.6133**	**2136483.3404**
RB-11I	**190.32**	**210938.5300**	**2136465.6332**
RB-11D	**190.60**	**210935.7024**	**2136455.7611**
RW-12I	**197.76**	**210856.6549**	**2134537.6926**
RW-12D	**197.72**	**210880.6908**	**2134539.2033**

Survey performed by Lockwood, Kessler & Bartlett, Inc. (LKB), Syosset, New York.

Information in bold is for measurements made by LKB in October 1993.

Table 2-4. Summary of Water-Level Elevation Data Collected on October 29, 1993 from Nassau County Monitoring Wells Within Approximately 2 Miles of the Syosset Landfill During the Second Operable Unit Remedial Investigation, Syosset, New York.

Well Number	NYSDEC Well Number	Total Depth (feet below land surface)	Total Depth (feet below water level)	Elevation of Measuring Point (a) (feet above mean sea level)	Depth to Water (feet below measuring point)	Water-Level Elevation (feet above mean sea level)
O-6A	N9353	101.05	36.78	140.42	64.27	76.15
O-7A	N9050	175.50	--	228.24	(b)	(b)
O-8	N1194	104.10	16.65	167.98	87.45	80.53
O-9	N1195	116.35	44.69	148.30	71.66	76.64
OP-1	N9926	129.90	43.33	168.18	86.57	81.61
OP-2	N9928	40.90	16.02	145.21	24.88 (c)	120.33
OP-3	N9927	94.20	8.82	161.68	85.38	76.30
P-7A	N10605	148.00	40.56	187.86	107.44	80.42
P-8A	N8888	111.20	16.20	174.49	95.00	79.49
P-9B	N9920	89.20	17.48	145.95	71.72	74.23
PT-1A	N10604	139.50	31.93	190.18	107.57	82.61
PT-2	N9933	114.65	15.11	178.97	98.94	80.03
PT-3	N9981	108.40	19.79	165.66	88.61	77.05
PT-4	N9932	104.80	31.38	145.54	73.42	72.12
T-5	N1228	175.90	11.08	227.12	164.82	62.30
[illegible]A	N10608	203.00	38.04	238.68	164.96	73.72
[illegible]	N1231	81.40	16.40	138.95	65.00	73.95
TU-1	N9934	126.50	30.20	173.93	96.30	77.63

(a) All wells are constructed at grade with a curb box assembly.
(b) Not recorded.
(c) Water level is anomalously high and was not used to contour the potentiometric surface map (Figure 3-3); well screen is likely plugged.

g:\aproject\Lockesba\NY0029.099\data\WTR10-29.XLS

Table 2-5. Summary of Water-Level Elevation Data Collected from Site Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Well Number	Elevation of Measuring Point (feet above mean sea level)	October 28, 1993 Depth to Water (feet below measuring point)	October 28, 1993 Water-Level Elevation (feet above mean sea level)
Shallow			
SY-1	194.52	113.36	81.86
SY-2R	187.12	106.17	80.95
SY-3	191.38	110.03	81.35
SY-4	193.32	111.45	81.87
SY-5	188.47	(a)	
SY-6	185.92	104.32	81.60
SY-7	197.46	115.71	81.75
SY-8	195.84	114.05	81.79
SY-9	199.41	116.77	82.64
W-3	190.61	108.97	81.64
W-4	(a)	(a)	(a)
PK-10S	188.70	108.41	80.29
RB-11S	189.91	109.12	80.79
Intermediate			
SY-1D	197.36	115.97	81.39
SY-2D	186.33	105.61	80.72
SY-3D	194.74	114.05	80.69
SY-6D	185.60	104.05	81.55
PK-10I	187.62	107.80	79.82
RB-11I	190.32	110.38	79.94
RW-12I	197.76	117.84	79.92
Deep			
SY-3DD	194.23	113.99	80.24
PK-10D	188.23	108.41	79.82
RB-11D	190.60	111.97	78.63
RW-12D	197.72	117.98	79.74

(a) Destroyed.

Table 2-5. Summary of Water-Level Elevation Data Collected from Site Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Well Number	Elevation of Measuring Point (feet above mean sea level)	--------------November 24, 1993------------------ Depth to Water (feet below measuring point)	Water-Level Elevation (feet above mean sea level)
Shallow			
SY-1	194.52	113.49	81.03
SY-2R	187.12	106.23	80.89
SY-3	191.38	110.13	81.25
SY-4	193.32	111.61	81.71
SY-5	188.47	(a)	(a)
SY-6	185.92	104.49	81.43
SY-7	197.46	115.63	81.83
SY-8	195.84	114.17	81.67
SY-9	199.41	117.00	82.41
W-3	190.61	108.89	81.72
W-4	(a)	(a)	(a)
PK-10S	188.70	108.49	80.21
RB-11S	189.91	109.38	80.53
Intermediate			
SY-1D	197.36	116.08	81.28
SY-2D	186.33	105.64	80.69
SY-3D	194.74	114.12	80.62
SY-6D	185.60	104.48	81.12
PK-10I	187.62	107.87	79.75
RB-11I	190.32	110.45	79.87
RW-12I	197.76	117.87	79.89
Deep			
SY-3DD	194.23	113.97	80.26
PK-10D	188.23	108.38	79.85
RB-11D	190.60	110.95	79.65
RW-12D	197.72	118.02	79.70

(a) Destroyed.

Table 2-6. Parameter List for the Second Operable Unit Remedial Investigation Groundwater Sampling Program, Syosset Landfill, Syosset, New York.

Volatile Organic Compounds	Metals
Dichlorodifluoromethane (a)	Antimony
Chloromethane	Arsenic
Vinyl chloride	Barium
Bromomethane	Beryllium
Chloroethane	Cadmium
Trichlorofluoromethane (a)	Chromium
1, 1-Dichloroethene	Copper
Acetone (b)	Iron
Carbon Disulfide (b)	Lead
Methylene chloride	Mercury
trans-1, 2-Dichloroethene	Nickel
1,1-Dichloroethane	Potassium
2-Butanone (b)	Selenium
cis-1, 2-Dichloroethene (b)	Silver
Chloroform (b)	Sodium
1, 1, 1-Trichloroethane	Thallium
Carbon tetrachloride	Zinc
Benzene	
1, 2-Dichloroethane	**Leachate Indicator Parameters**
Trichloroethene	
1, 2-Dichloropropane	Specific conductance (field)
Bromodichloromethane	pH (field)
2-Chloroethyl vinyl ether	Chloride
cis-1, 3-Dichloropropene	Nitrate
4-Methyl-2-Pentanone (b)	Ammonia
Toluene	Hardness
trans-1, 3-Dichloropropene	Bicarbonate
1, 1, 2-Trichloroethane	Carbonate
Tetrachloroethene	Sulfate
2-Hexanone (b)	Total dissolved solids
Dibromochloromethane	
Chlorobenzene	
Ethylbenzene	
m&p -Xylene (b)	
o-Xylene (b)	
Styrene(b)	
Bromoform	
1, 1, 2, 2-Tetrachloroethane	

(a) This compound was deleted from the priority pollutant list.

(b) This compound was not included on the revised parameter list but was also analyzed. In May and June 1993, samples were collected by Geraghty & Miller, Inc. from Well Pk-10I for analysis of volatile organic compounds (VOCs). The laboratory analyzed these samples for the VOCs on the original parameter list included in the OU-2 RI Work Plan. However, because the laboratory (IEA Laboratories, Inc.) calibrates its analytical instruments for VOCs using commercial standards that contain a comprehensive list of VOCs that include more compounds than are contained in the parameter list, some of these additional VOCs were detected in this sample. This is the reason why these additional compounds were reported and included in this Table.

Table 2-7. Summary of Construction Details for Gas Monitoring Wells, Syosset Landfill, Syosset, New York.

Well No.	Date Installed	Diameter of Well (inches)	Total Depth of Boring (feet below land surface)	Depth to Landfill Material (feet below land surface)	Screen Interval (feet below land surface)	Sand Packed Interval (feet below land surface)	Grouted Interval (feet below land surface)	Casing Stick Up (feet above land surface)
On-Site Wells								
G-8	4/23/87	1	5.1	--	2.0 - 5.0	1.2 - 5.1	0 - 1.2	1.15
G-10	4/23/87	1	4.5	3	1.4 - 4.4	1.0 - 4.5	0 - 1.0	1.75
G-11	4/23/87	1	4.0	--	1.4 - 4.0	1.0 - 4.0	0 - 1.0	1.55
G-13	4/24/87	1	4.6	--	1.6 - 4.6	1.2 - 4.6	0 - 1.2	1.60
G-14	4/27/87	1	4.7	--	1.7 - 4.7	1.2 - 4.7	0 - 1.2	1.50
Off-Site Wells								
CS-20	9/28/93	1	4.7	--	2.1 - 4.7	1.6 - 4.7	1.0 - 1.6	none
CS-21	9/28/93	1	5.0	--	2.6 - 5.0	2.6 - 5.0	1.6 - 2.1	none
CS-22	9/29/93	1	4.25	--	1.5 - 4.25	1.1 - 4.25	0.6 - 1.1	none

-- Landfill material not encountered.

Table 3-1a. Summary of Horizontal Hydraulic Gradient Data for Shallow, Intermediate, and Deep Hydrogeologic Zones, Based on Potentiometric Surface Maps (Figures 3-4 to 3-9), Second Operable Unit Remedial Investigation of the Syosset Landfill, Syosset, New York.

Zone	Length of Groundwater Flow Line (L), in Inches, between Groundwater Elevation Contours [a]	Actual Distance (L), in Feet, between Groundwater Elevation Contours [a]	Change in Hydraulic Head (_h) between Groundwater Elevation Contours, in Feet	Horizontal Hydraulic Gradient $I_H = \frac{\_H}{L}$ (Dimensionless)	Average I_H
Shallow					
Figure 3-4	4.8	1,440	1.0	0.00069	
(October 28, 1993)	5.6	1,680	1.0	0.00060	
	5.0	1,500	1.0	0.00067	0.00065
Figure 3-5	4.8	1,440	1.0	0.00069	
(November 24, 1993)	6.1	1,830	1.0	0.00055	
	4.8	1,440	1.0	0.00069	0.00064
				Overall Average $I_{H\ Shallow}$	0.00065
Intermediate					
Figure 3-6	1.2	360	0.5	0.00139	
(October 28, 1993)	5.7	1,710	1.5	0.00088	
	4.4	1,320	1.5	0.00114	0.00114
Figure 3-7	1.2	360	0.5	0.00139	
(November 24, 1993)	6.7	2,010	1.5	0.00075	
	4.6	1,380	1.5	0.00109	0.00108
				Overall Average $I_{H\ Intermediate}$	0.00111

Table 3-1a. Summary of Horizontal Hydraulic Gradient Data for Shallow, Intermediate, and Deep Hydrogeologic Zones, Based on Potentiometric Surface Maps (Figures 3-4 to 3-9), Second Operable Unit Remedial Investigation of the Syosset Landfill, Syosset, New York.

Zone	Length of Groundwater Flow Line (L), in Inches, between Groundwater Elevation Contours [(a)]	Actual Distance (L), in Feet, between Groundwater Elevation Contours [(a)]	Change in Hydraulic Head (_h) between Groundwater Elevation Contours, in Feet	Horizontal Hydraulic Gradient $I_H = \frac{\_H}{L}$ (Dimensionless)	Average I_H
Deep					
Figure 3-8 (October 28, 1993)	2.2	660	0.44	0.00067	
Figure 3-9 (November 24, 1993)	2.2	660	0.56	0.00085	
				Overall Average $I_{H\ Deep}$	0.00076

(a) The length of the groundwater flow lines in Figures 3-4 to 3-9 was determined by measuring the length of individual flow arrows between two groundwater elevation contours in inches with a ruler. The actual length (in feet) was calculated by multiplying the measured length in inches by the map scale (1 inch = 300 feet). Flow line lengths were measured in the order from west to east with the values shown on this table corresponding to this order from top to bottom.

Table 3-1b. Summary of Vertical Hydraulic Gradient Data, Second Operable Unit Remedial Investigation of the Syosset Landfill, Syosset, New York.

			October 28, 1993			November 24, 1993		
Well No.	Elevation of Top of Screen (feet, mean sea level)	Difference (Distance) Between the Top of Well Screen for Cluster Wells (feet)	Water-Level Elevation (feet, mean sea level)	Difference in Water-Level Elevation Between Cluster Wells (feet)	Vertical Hydraulic Gradient (feet/feet)	Water-Level Elevation (feet, mean sea level)	Difference in Water-Level Elevation Between Cluster Wells (feet)	Vertical Hydraulic Gradient (feet/feet)
SY-1	69.67	56.62	81.86	-0.47	-0.0083	81.03	+0.25	+0.0044
SY-1D	13.05		81.39			81.28		
SY-2R	70.53	76.14	80.95	-0.23	-0.0030	80.89	-0.20	-0.0026
SY-2D	-5.61		80.72			80.69		
SY-3	56.88	53.64	81.35	-0.66	-0.0123	81.25	-0.63	-0.0117
SY-3D	3.24	339.01	80.69	-0.45	-0.0013	80.62	-0.36	-0.0010
SY-3DD	-335.77		80.24			80.26		
SY-6	51.02	60.12	81.60	-0.05	-0.00083	81.43	-0.31	-0.0052
SY-6D	-9.10		81.55			81.12		
PK-10S	50.10	212.94	80.29	-0.47	-0.0022	80.21	-0.46	-0.0022
PK-10I	-162.34	138.43	79.82	0	0	79.75	+0.10	+0.0007
PK-10D	-300.77		79.82			79.85		
RB-11S	56.96	209.14	80.79	-0.85	-0.0041	80.53	-0.66	-0.0032
RB-11I	-152.18	150.22	79.94	-1.31	-0.0087	79.87	-0.22	-0.0015
RB-11D	-302.40		78.63			79.65		
RW-12I	-152.24	140.04	79.92	-0.18	-0.0013	79.89	-0.19	-0.0014
RW-12D	-292.28		79.74			79.70		

+ Indicates an upward vertical hydraulic gradient.
-- Indicates a downward vertical hydraulic gradient.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date:	SY-1 11/3/93	SY-1 11/30/93	SY-1D 11/4/93	SY-1D 12/1/93	SY-2R 11/2/93	SY-2R 12/3/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	<1	<1	**1.4 J**	<1	<1
Chloromethane	<1	<1	<1	<1	**0.5 J**	<1
Vinyl chloride	<1	<1	**1.6**	**1.4 J**	<1	<1
Bromomethane	<1	<1	<1 J	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	**0.1 J**	<1	<1	<1
Acetone	<38 J	<25 J	<25 J	<26 J	<14 J	<27 J
Carbon disulfide	<1	<1	<1	<1	<1	<1 J
Methylene chloride	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	**2.9**	**2.4**	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	**6.4**	**4.2**	<1	<1
Chloroform	<1	<1	**9.1**	**5.9**	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	**0.2 J**	**0.2 J**
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	**0.6 J**	**0.5 J**	<1	<1
1,2-Dichloroethane	<1	<1	<1	**1.7**	<1	<1
Trichloroethene	<1	<1	**1.3**	**1.1**	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	**2.4**	**1.7**	**0.4 J**	**0.4 J**
2-Hexanone	<5	R	<5	R	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	**4.8**	**3.7**	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	**0**	**0**	**29.2**	**24**	**1.1**	**0.6**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

VOC-MISC.XLS

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date:	SY-2D 11/2/93	SY-2D 12/3/93	SY-3 11/2/93	SY-3 12/3/93	SY-3D 11/2/93	SY-3D 12/3/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	0.2 J	<1	<1	<1	<1
Chloromethane	<1	<1	0.4 J	<1	<1	<1
Vinyl chloride	<1	<1	2.4 J	2.2	0.6 J	0.6 J
Bromomethane	<1	<1	<1 J	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	0.5 J	0.7 J	<1	0.3 J	<1	<1
Acetone	<29 J	<43 J	<18 J	<26 J	<17 J	<21
Carbon disulfide	<1	<1	<1	<1	<1	<1
Methylene chloride	<2	<2	<2.4	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	2.1	3.6	2.3	2.5	1.5	1.6
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	0.2 J	0.2 J	1.6	1.2	0.7 J	0.6 J
Chloroform	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	0.7 J	1.4	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	0.6 J	0.6 J	1.8	1.8
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	0.4 J	0.7 J	1.5	1.6	0.9 J	0.9 J
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	0.2 J	<1	0.5 J	0.1 J	0.4 J	0.2 J
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	0.5 J	0.5 J	<1	<1	<1	<1
2-Hexanone	<5	R	R	R	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	0.4 J	0.6 J	2.3	2.2	5.5	5.4
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	0.08 J	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	5.08	7.9	11.6	10.7	11.4	11.1

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-3DD	SY-3DD	SY-4	SY-4	SY-6	SY-6
Sample Date:	11/1/93	11/29/93	11/2/93	12/3/93	11/5/93	12/2/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	<1	<1	<1	<1 J	<1
Chloromethane	<1 J	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	0.7 J	0.7 J	<1	<1
Bromomethane	<1 J	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1 J
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1 J
Acetone	<29 J	<52 J	<14 J	<24 J	<37 J	<27 J
Carbon disulfide	<1	<1 J	<1	<1 J	<1	<1 J
Methylene chloride	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	1.4	1.8	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	0.6 J	0.4 J	<1	<1
Chloroform	<1	<1	<2.7	<1.1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	0.1 J	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	0.7 J	0.8 J	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	0.1 J	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	<1	<1	<1	0.2 J	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	0.2 J	<1
2-Hexanone	R	R	<5	R	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	8.0	9.1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1 J	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	0	0	11.5	13	0.3	0

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-6D	SY-6D	SY-7	SY-7	SY-8	SY-8
Sample Date:	11/1/93	11/29/93	11/4/93	12/2/93	11/4/93	12/1/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	<1 J	<20 J	<20	<1 J	<1
Chloromethane	<1 J	<1	<20	<20	<1	<1
Vinyl chloride	<1	<1	<20	<20	<1	<1
Bromomethane	<1 J	<1	<20	<20	<1 J	<1
Chloroethane	<1	<1	<20	<20	<1	<1
1,1-Dichloroethene	<1	<1	<20	<20	<1	<1
Acetone	<27 J	<39 J	<430 J	<100	<10 J	<18 J
Carbon disulfide	<1	<1 J	<20	<20 J	<1	<1
Methylene chloride	<2.5	<2	<40	<40	<2.2	<1
trans-1,2-Dichloroethene	<1	<1	<20	<20	<1	<1
1,1-Dichloroethane	<1	<1	<20	<20	**1.3**	**1.2**
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<20	<20	**1.1**	**0.4 J**
Chloroform	**8.5**	<4.0	<20	<25	<1	<1
1,1,1-Trichloroethane	<1	<1	<20	<20	**0.8 J**	<1
Carbon tetrachloride	<1	<1	<20	<20	<1	<1
Benzene	<1	<1	**410**	**540**	<1	<1
1,2-Dichloroethane	<1	<1	<20	<20	<1	<1
Trichloroethene	<1	<1	<20	<20	**2.8**	**1.5**
1,2-Dichloropropane	<1	<1	<20	<20	<1	<1
Bromodichloromethane	**0.7 J**	<1	<20	<20	<1	<1
2-Chloroethylvinylether	<1	<1	<20	<20	<1	<1
cis-1,3-Dichloropropene	<1	<1	<20	<20	<1	<1
4-Methyl-2-pentanone	<5	<5	<100	<100	<5	<5
Toluene	<1	<1	**5.2 J**	<20	<1	<1
trans-1,3-Dichloropropene	<1	<1	<20	<20	<1	<1
1,1,2-Trichloroethane	<1	<1	<20	<20	<1	<1
Tetrachloroethene	<1	<1	**2.4 J**	**3 J**	**17**	**10**
2-Hexanone	R	R	**89 J**	R	<5	R
Dibromochloromethane	<1	<1	<20	<20	<1	<1
Chlorobenzene	<1	<1	<20	<20	**0.1 J**	<1
Ethylbenzene	<1	<1	<20	<20	<1	<1
meta and/or para-Xylene	<1	<1	<20	<20	<1	<1
ortho-Xylene	<1	<1	**5.1 J**	**4.9 J**	<1	<1
Styrene	<1	<1	<20	<20	<1	<1
Bromoform	<1	<1	<20 J	<20	<1	<1
Trichlorofluoromethane	<1	<1	<20	<20	**0.1 J**	<1
1,1,2,2-Tetrachloroethane	<1	<1	<20	<20	<1	<1
Total VOCs:	**9.2**	**0**	**511.7**	**547.9**	**23.2**	**13.1**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: Sample Date: Parameter (concentrations in ug/L)	SY-9 11/1/93	SY-9 11/29/93	PK-10S 11/4/93	PK-10S 12/1/93	PK-10I 11/4/93	PK-10I (Rep-2) 11/4/93
Dichlorodifluoromethane	<1	<1 J	<1 J	0.2 J	<1 J	<1 J
Chloromethane	<1 J	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	0.7 J	0.8 J
Bromomethane	<1 J	<1	<1 J	<1	<1 J	<1 J
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	0.8 J	0.9 J	0.5 J	<1
Acetone	<94 J	<85 J	<14 J	<18 J	<29 J	<26 J
Carbon disulfide	<1	<1 J	<1	<1	<1	<1
Methylene chloride	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	0.1 J	5.4	6.7	6.6	6.3
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	0.2 J	<1	<1	2.7	2.5
Chloroform	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	2.5	3.3	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	0.1 J	<1	<1	0.5 J	0.5 J
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	0.5 J	0.7 J	1.2	1.2
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	<1	<1	0.3 J	0.8 J	0.3 J	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	1.3	1.3	3.3	3.3
2-Hexanone	R	R	<5	R	<5	<5
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	1.5	1.3	<1	<1	20	17
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	**1.5**	**1.7**	**10.8**	**13.9**	**35.8**	**31.6**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	PK-10I	(Rep-2)	PK-10D	PK-10D	RB-11S	RB-11S
Sample Date:	12/1/93	12/1/93	11/4/93	12/1/93	11/3/93	11/30/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	**0.2** J	<1 J	<1	<1	<1 J
Chloromethane	<1	<1	<1	<1	<1	<1
Vinyl chloride	**0.6** J	**0.7** J	<1	<1	<1	<1
Bromomethane	<1	<1	<1 J	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	**0.2** J	<1	<1	<1	<1
Acetone	<23 J	<30 J	<16 J	<25 J	<35 J	<56 J
Carbon disulfide	<1	<1	<1	<1	<1	<1 J
Methylene chloride	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	**5.4**	**5.6**	**0.4** J	**0.5** J	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	**1.3**	**1.4**	**0.4** J	**0.3** J	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	**0.4** J	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	**0.9** J	**0.9** J	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<1	<5	<5	<5	<5
Toluene	**0.8** J	**1.0**	**0.7** J	**5.7**	<1	**0.8** J
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	**1.4**	**1.5**	<1	<1	<1	<1
2-Hexanone	R	R	<5	R	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	**5.2**	**5.3**	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	**0.1** J
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	**15.6**	**16.8**	**1.9**	**6.5**	**0**	**0.9**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	RB-11I	RB-11I (Rep-1)	RB-11I	RB-11I (Rep-1)	RB-11D	RB-11D
Sample Date:	11/3/93	11/3/93	11/30/93	11/30/93	11/3/93	11/30/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	1.6 J	1.6 J	2.6 J	2.7 J	<1	<1 J
Chloromethane	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	1.2	1.3	1.6	1.5	<1	<1
Acetone	<19 J	<14 J	<64 J	<46 J	R	<38 J
Carbon disulfide	<1	<1	<1 J	<1 J	<1	<1 J
Methylene chloride	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	10	10	13	13	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	2.8	2.9	2.1	2.2	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	3.4	3.4	4.8	4.9	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	3.0	3.0	3.9	4.0	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	0.6 J	0.6 J	0.3 J	0.3 J	1.2	0.4 J
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	19	19	23	23	<1	<1
2-Hexanone	<5	<5	R	R	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	0.1 J	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	0.9 J	0.9 J	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	41.6	41.8	52.2	52.5	1.3	0.4

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	RW-12I	RW-12I (Rep-3)	RW-12I	RW-12I (Rep-3)	RW-12D	RW-12D
Sample Date:	11/5/93	11/5/93	12/2/93	12/2/93	11/5/93	12/2/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<2	<2	<5	<5	<1	<1
Chloromethane	<2	<2	<5	<5	<1	<1
Vinyl chloride	<2	<2	**0.6 J**	<5	**9.2**	**17**
Bromomethane	<2	<2	<5	<5	<1	<1 J
Chloroethane	<2	<2	<5	<5	<1	<1 J
1,1-Dichloroethene	**13**	**15**	**26**	**27**	<1	<1
Acetone	R	R	<130 J	<130 J	<29 J	<21 J
Carbon disulfide	<2 J	<2 J	<5 J	<5 J	<1 J	<1 J
Methylene chloride	<2	<4	<10	<12	<2	<2
trans-1,2-Dichloroethene	<2	<2	<5	<5	<1	<1
1,1-Dichloroethane	**11**	**13**	**17**	**17**	<1	**0.3 J**
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	**5.2**	**5.7**	**5.7**	**5.9**	**2.6**	**2.3**
Chloroform	<2	<2	<5	<5	<1.3	<1.4
1,1,1-Trichloroethane	**40**	**40**	**75**	**75**	<1	<1
Carbon tetrachloride	<2	<2	<5	<5	<1	<1
Benzene	<2	<2	**0.5 J**	**0.5 J**	**0.4 J**	**0.9 J**
1,2-Dichloroethane	<2	<2	<5	<5	<1	<1.8
Trichloroethene	**6.2**	**6.3**	**9.8**	**9.9**	**0.9 J**	**1.1**
1,2-Dichloropropane	<2	<2	<5	<5	<1	**1.0**
Bromodichloromethane	<2	<2	<5	<5	<1	<1
2-Chloroethylvinylether	<2 J	<2 J	<5	<5	<1 J	<1
cis-1,3-Dichloropropene	<2	<2	<5	<5	<1	<1
4-Methyl-2-pentanone	<10	<10	<25	<25	<5	<5
Toluene	<2	<2	**13**	**12**	**0.7 J**	**6.6**
trans-1,3-Dichloropropene	<2	<2	<5	<5	<1	<1
1,1,2-Trichloroethane	<2	<2	<5	<5	<1	<1
Tetrachloroethene	**68**	**71**	**110**	**110**	**2.6**	**2.4**
2-Hexanone	R	R	R	R	R	R
Dibromochloromethane	<2	<2	<5	<5	<1	<1
Chlorobenzene	**1.1 J**	**1.3 J**	**0.9 J**	**0.9 J**	<1	**0.3 J**
Ethylbenzene	<2	<2	<5	<5	<1	<1
meta and/or para-Xylene	<2	<2	<5	<5	<1	<1
ortho-Xylene	<2	<2	<5	<5	<1	<1
Styrene	<2	<2	<5	<5	<1	<1
Bromoform	<2	<2	<5	<5	<1	<1
Trichlorofluoromethane	<2	<2	**1.2 J**	**1.2 J**	<1	<1
1,1,2,2-Tetrachloroethane	<2	<2	<5	<5	<1	<1
Total VOCs:	**144.5**	**152.3**	**259.7**	**259.4**	**16.4**	**31.9**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

VOC-MISC.XLS

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date:	Trip Blank 11/1/93	Trip Blank 11/2/93	Trip Blank 11/3/93	Trip Blank 11/4/93	Trip Blank 11/5/93	Trip Blank 11/29/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	<1	<1	<1 J	<1 J	0.4 J
Chloromethane	<1 J	<1 J	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1
Bromomethane	<1 J	<1 J	<1	<1 J	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1
Acetone	28 JB	34 JB	14 JB	14 J	35 J	33 J
Carbon disulfide	<1	<1	<1	<1	<1	<1 J
Methylene chloride	2.8 JB	1 JB	0.4 JB	0.4 JB	0.5 JB	2.7 JB
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
Chloroform	0.9 J	1.1	0.8 J	1.0 B	0.8 JB	0.8 JB
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5	<5
Toluene	0.2 J	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1
2-Hexanone	R	R	<5	<5	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1 J	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	0.4 J
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1
Total VOCs:	31.9	36.1	15.2	15.4	36.3	37.3

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date:	Trip Blank 11/30/93	Trip Blank 12/1/93	Trip Blank 12/2/93	Trip Blank 12/3/93
Parameter (concentrations in ug/L)				
Dichlorodifluoromethane	0.4 J	<1	<1	<1
Chloromethane	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1
Bromomethane	<1	<1	<1 J	<1
Chloroethane	<1	<1	<1 J	<1
1,1-Dichloroethene	<1	<1	<1	<1
Acetone	30 J	14 JB	24 J	50 JB
Carbon disulfide	<1 J	<1	<1 J	<1
Methylene chloride	0.5 JB	0.8 JB	0.7 JB	0.7 JB
trans-1,2-Dichloroethene	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1
2-Butanone	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<1	<1
Chloroform	1.2 B	1.0 B	0.9 JB	0.9 JB
1,1,1-Trichloroethane	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1
Benzene	<1	<1	<1	<1
1,2-Dichloroethane	1.0	<1	0.8 J	1.5
Trichloroethene	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5
Toluene	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1
2-Hexanone	R	R	R	R
Dibromochloromethane	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1
Styrene	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1
Total VOCs:	**33.1**	**15.8**	**26.4**	**53.1**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date:	Field Blank 11/1/93	Field Blank 11/2/93	Field Blank 11/3/93	Field Blank 11/4/93	Field Blank 11/5/93	Field Blank 11/29/93
Parameter (concentrations in ug/L)						
Dichlorodifluoromethane	<1	<1	<1	1.0 J	<1 J	0.4 J
Chloromethane	<1 J	<1 J	<1	0.4 J	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1
Bromomethane	<1 J	<1 J	<1	<1 J	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1
Acetone	19 JB	21 JB	12 JB	55 J	29 J	32 J
Carbon disulfide	<1	<1	<1	<1	<1	<1 J
Methylene chloride	4.3 JB	0.8 JB	0.5 JB	0.3 JB	0.5 JB	2.7 BJ
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1
2-Butanone	R	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
Chloroform	1.1	1.1	0.9 J	1.2 B	1.0 B	0.7 JB
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	0.4 J	<1	0.4 J	<1	0.8 J
Trichloroethene	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	5.3	<5	<5
Toluene	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1
2-Hexanone	R	R	<5	<5	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1 J	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	0.2 J
1,1,2,2-Tetrachloroethane	<1	<1	<1	0.6 J	<1	<1
Total VOCs:	24.4	23.3	13.4	64.2	30.5	36.8

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-2. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	Field Blank	Field Blank	Field Blank	Field Blank
Sample Date:	11/30/93	12/1/93	12/2/93	12/3/93
Parameter (concentrations in ug/L)				
Dichlorodifluoromethane	0.4 J	<1	<1	<1
Chloromethane	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1
Acetone	44 J	31 JB	34 JB	34 JB
Carbon disulfide	<1 J	<1	<1	<1
Methylene chloride	2.8 JB	2.1 JB	2.4 JB	2.1 B
trans-1,2-Dichloroethene	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1
2-Butanone	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<1	<1
Chloroform	0.7 JB	0.8 JB	0.9 JB	0.8 JB
1,1,1-Trichloroethane	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1
Benzene	<1	<1	<1	<1
1,2-Dichloroethane	1.2	0.8 J	0.5 J	<1
Trichloroethene	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5
Toluene	<1	<1	0.2 J	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1
2-Hexanone	R	R	R	R
Dibromochloromethane	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1
Styrene	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1
Total VOCs:	49.1	34.7	38	36.9

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-1	SY-1	SY-1	SY-1	SY-1D	SY-1D	SY-1D	SY-1D
Sample Date:		11/3/93	11/3/93	11/30/93	11/30/93	11/4/93	11/4/93	12/1/93	12/1/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	17.4 BJ	18.5	23.9 J	22.6	<1.0 J	<1.0	<1.0 J	<1.0
Barium	1,000	78.6 B	86.6 B	88.4 BJ	102 B	57.0 B	56.6 B	62.2 BJ	69.2 B
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	18.6 J	<3.0 J	18.7	<3.0	<3.0	<3.0 J	<3.0	<3.0
Copper	1,000	29.0	8.9 B	9.5 B	<7.0	<7.0	<7.0	<7.0	<7.0
Iron	300	80,000	20,400	79,900	23,000	152	<87.0	<87.0	<87.0
Lead	50	13.1	<2.0 J	9.5 J	<2.0	<2.0	<2.0	<2.0	<2.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	26.8 B	<11.0	11.2 B	17.4 B	<11.0	<11.0	<11.0	12.1 B
Potassium	NS	5,090	4,490 B	4,540 BJ	4,750 B	10,600	10,600	10,700	11,000
Selenium	10	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0 J	<2.0 J	<2.0
Silver	50	2.8 B	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	20,100	20,800	23,000	23,600	180,000	179,000	192,000 J	190,000
Thallium	2	<1.0 J	<1.0	<1.0 J	<1.0	<1.0	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	39.3	21.2	R	23.5	11.9 B	11.6 B	14.8 B	29.2

ug/L Micrograms per liter.
B Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J Estimated value.
R Unusable value.
NS No standard.
(a) Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-2R	SY-2R	SY-2R	SY-2R	SY-2D	SY-2D	SY-2D	SY-2D
Sample Date:		11/2/93	11/2/93	12/3/93	12/3/93	11/2/93	11/2/93	12/3/93	12/3/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	36.4 B	<21.0	24.3 B	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0 J	<1.0	<1.0	<1.0	<1.0 J	<1.0	<1.0	<1.0
Barium	1,000	64.2 B	88.4 B	50.3 B	49.2 B	57.0 B	57.8 B	48.7 B	37.6 B
Beryllium	4	7.8	2.5 B	1.4 B	1.2 B	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	2.0 B	2.8 BJ	<2.0	<2.0	2.4 B
Chromium	50	16.2	<3.0 J	3.7 BJ	<3.0 J	<3.0	<3.0 J	6.4 BJ	<3.0 J
Copper	1,000	24.5 B	<7.0	<7.0	<7.0	12.6 B	<7.0	<7.0	<7.0
Iron	300	20,600	1,770	2,060	383	264	<87.0	R	<87.0
Lead	50	128	<2.0	11.1 J	1.7 B	<2.0	<2.0	1.8 BJ	<1.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	91.1	21.8 B	16.3 B	<11.0	<11.0	<11.0	<11.0	<11.0
Potassium	NS	18,700	18,200	19,800	18,200	13,200	12,600	12,600	12,600
Selenium	10	<2.0 J	<2.0 J	<2.0	<2.0	<2.0 J	<2.0	<2.0	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	239,000	232,000	227,000	204,000	70,500	66,600	65,000	62,500
Thallium	2	<1.0 J	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	115	48.6	29.9 J	29.7	11.5 B	10.3 B	29.1 J	24.7

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-3	SY-3	SY-3	SY-3	SY-3D	SY-3D	SY-3D	SY-3D
Sample Date:		11/2/93	11/2/93	12/3/93	12/3/93	11/2/93	11/2/93	12/3/93	12/3/93
Parameter (concentrations in ug/L)	MCL (a)	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	6	91.8	<21.0	35.7 B	36.7 B	<21.0	<21.0	<21.0	<21.0
Arsenic	50	41.4 J	15.0	75.1	47.4	94.7 J	8.9 B	102	2.5 B
Barium	1,000	237	110 B	213	186 B	162 B	101 B	153 B	112 B
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.4 B
Chromium	50	31.3	<3.0 J	5.5 BJ	<3.0 J	7.3 BJ	<3.0 J	<3.0 J	<3.0 J
Copper	1,000	80.1	<7.0	15.4 B	<7.0	104	40.8	44.9	8.3 B
Iron	300	295,000	2,550	70,100	7,900	34,700	1,810	23,300	728
Lead	50	62.8	<2.0 J	33.0 J	<1.0	10.7	<2.0	8.8 J	<1.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	24.2 B	<11.0	<11.0	<11.0	<11.0	17.8 B	14.9 B	<11.0
Potassium	NS	70,500	68,000	73,600	66,600	131,000	132,000	142,000	132,000
Selenium	10	<2.0 J	<2.0	<2.0	<2.0	<2.0 J	<2.0 J	<2.0	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	99,100	98,400	124,000	116,000	194,000	198,000	211,000	196,000
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	181	16.5 B	92.4 J	33.0	76.5	23.3	66.0 J	37.2

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-3DD	SY-3DD	SY-3DD	SY-3DD	SY-4	SY-4	SY-4	SY-4
Sample Date:		11/1/93	11/1/93	11/29/93	11/29/93	11/2/93	11/2/93	12/3/93	12/3/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	**25.0 B**	<21.0	<21.0	<21.0	**23.1 B**	**38.3 B**	**21.0 B**	<21.0
Arsenic	50	<1.0 J	<1.0	<1.0 J	<1.0	**9.4 BJ**	**5.2 B**	**10.3**	**5.9 B**
Barium	1,000	<2.0	<2.0	**2.5 B**	**11.3 B**	**129 B**	**116 B**	**128 B**	**127 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	<3.0	<3.0 J	**9.4 B**	<3.0	**7.8 B**	<3.0 J	**5.3 BJ**	<3.0 J
Copper	1,000	R	R	**20.1 B**	<7.0	**63.7**	<7.0	**61.9**	<7.0
Iron	300	**1,030**	<87.0	**564**	<87.0	**41,200**	**9,810**	**45,900**	**8,910**
Lead	50	**7.5**	<2.0 J	**2.7 B**	<2.0	**24.3**	<2.0 J	**65.4 J**	<1.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	**14.6 B**	<11.0	**34.2 B**	**16.4 B**	<11.0	<11.0	**16.0 B**	<11.0
Potassium	NS	**869 B**	<473	**823 B**	**1,030 B**	**27,800**	**26,500**	**27,600**	**27,700**
Selenium	10	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0 J	<2.0	<2.0
Silver	50	**2.3 B**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**7,530**	**5,780**	**4,760 B**	**4,730 B**	**117,000**	**118,000**	**115,000**	**112,000**
Thallium	2	<1.0 J	<1.0	<1.0 J	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	**160**	**72.9**	R	**52.4**	**99.9**	**13.1 B**	**147 J**	**37.5**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-6	SY-6	SY-6	SY-6	SY-6D	SY-6D	SY-6D	SY-6D
Sample Date:		11/5/93	11/5/93	12/2/93	12/2/93	11/1/93	11/1/93	11/29/93	11/29/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0	<1.0	<1.0	<1.0	**1.2 BJ**	<1.0	<1.0 J	<1.0
Barium	1,000	**59.6 B**	**75.0 B**	**91.6 B**	**91.6 B**	**41.8 B**	**52.4 B**	**37.7 BJ**	**44.6 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	**2.3 B**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	<3.0	<3.0	<3.0 J	<3.0 J	**23.9 J**	<3.0 J	<3.0	<3.0
Copper	1,000	**16.8 B**	<7.0	**38.5**	<7.0	R	R	**7.6 B**	<7.0
Iron	300	R	**399**	**22,200**	**173**	**3,280**	**961**	**985**	**939**
Lead	50	**14.0 J**	<2.0 J	**21.5 J**	<1.0	**7.5**	<2.0	<2.0 J	<2.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	<11.0	**12.6 B**	<11.0	**14.3 B**	<11.0
Potassium	NS	**1,330 B**	**1,640 B**	**1,800 B**	**1,660 B**	**2,080 B**	**676 B**	**2,030 B**	**2,210 B**
Selenium	10	<2.0 J	<2.0	<2.0	<2.0	<2.0 J	<2.0 J	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	**3.9 B**	<2.0	<2.0	<2.0
Sodium	20,000	**38,900 J**	**49,100 J**	**38,200**	**38,200**	**50,100**	**50,400**	**50,900**	**51,200**
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0
Zinc	5,000	**347 J**	**235 J**	**611 J**	**183**	**52.4**	**55.3**	R	**20.8**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-7	SY-7	SY-7	SY-7	SY-8	SY-8	SY-8	SY-8
Sample Date:		11/4/93	11/4/93	12/2/93	12/2/93	11/4/93	11/4/93	12/1/93	12/1/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	27.8 B	46.8 B	34.4 B	25.2 B	<21.0	<21.0	25.5 B	<21.0
Arsenic	50	3.4 B	1.2 B	7.0 B	1.7 B	<1.0	<1.0	<1.0 J	<1.0
Barium	1,000	171 B	146 B	179 B	179 B	68.6 B	74.4 B	65.9 BJ	82.9 B
Beryllium	4	<1.0	<1.0	<1.0	1.5 B	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	28.2	<3.0	49.9 J	<3.0 J	<3.0	<3.0	<3.0	4.4 B
Copper	1,000	86.1	9.5 B	134	<7.0	<7.0	<7.0	<7.0	<7.0
Iron	300	R	77,800	181,000	71,200	R	2,540	2,450	2,480
Lead	50	37.9 J	<2.0 J	21.9 J	<1.0	6.0 J	<2.0 J	<2.0	<2.0
Mercury	2	0.77	<0.20	0.31	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	22.1 B	<11.0	69.6	14.1 B	<11.0	<11.0	16.8 B	<11.0
Potassium	NS	1,650 B	1,560 B	2,280 B	1,940 B	4,740 B	5,110	5,420	5,790
Selenium	10	<2.0 J	<2.0	<2.0	<2.0	<2.0 J	<2.0 J	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	110,000	118,000	173,000	175,000	26,800	29,000	29,300 J	29,100
Thallium	2	<1.0 J	<1.0 J	<1.0 J	1.8 BJ	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	529 J	174 J	389 J	139	1,840 J	1,970 J	1,900	1,940

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		SY-9	SY-9	SY-9	SY-9	PK-10S	PK-10S	PK-10S	PK-10S
Sample Date:		11/1/93	11/1/93	11/29/93	11/29/93	11/4/93	11/4/93	12/1/93	12/1/93
Parameter (concentrations in ug/L)	MCL (a)	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	**39.3 J**	**19.4**	**26.7 J**	**19.1**	**1.9 B**	**1.1 B**	**3.5 BJ**	<1.0
Barium	1,000	**144 B**	**159 B**	**155 BJ**	**82.8 B**	**38.5 B**	**32.0 B**	**36.3 BJ**	**52.8 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	**23.3 J**	<3.0 J	**24.7**	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	1,000	R	R	**160**	<7.0	**38.8**	<7.0	**8.1 B**	<7.0
Iron	300	**27,300**	**6,480**	**24,400**	**5,340**	R	**682**	**5,380**	**694**
Lead	50	**58.8**	<2.0	**41.8**	<2.0	**10.1 J**	<2.0 J	**6.2**	<2.0 J
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	**22.2 B**	<11.0	**23.1 B**	<11.0	**25.0 B**	**17.6 B**	**17.5 B**	**11.1 B**
Potassium	NS	**3,120 B**	**2,000 B**	**3,550 B**	**2,130 B**	**1,010 B**	**986 B**	**1,900 B**	**1,500 B**
Selenium	10	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0 J	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**25,900 J**	**30,400 J**	**27,600 J**	**32,500 J**	**19,400**	**20,900**	**20,500**	**20,900**
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	**227**	**81.6**	**219**	**67.9**	**178 J**	**155 J**	**43.3 J**	**53.8 J**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		PK-10I	PK-10I (Rep-2)	PK-10I	PK-10I (Rep-2)	PK-10I	PK-10I (Rep-2)	PK-10I	PK-10I (Rep-2)
Sample Date:		11/4/93	11/4/93	11/4/93	11/4/93	12/1/93	12/1/93	12/1/93	12/1/93
		Total	Total	Dissolved	Dissolved	Total	Total	Dissolved	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0	<1.0
Barium	1,000	**54.8 B**	**60.8 B**	**52.2 B**	**54.8 B**	**65.4 BJ**	**65.4 BJ**	**64.8 B**	**67.9 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	<3.0	<3.0	<3.0	<3.0	**3.7 B**	**4.6 B**	<3.0	<3.0
Copper	1,000	**9.9 B**	**13.0 B**	**13.7 B**	**16.8 B**	<7.0	<7.0	<7.0	<7.0
Iron	300	R	R	<87.0	<87.0	**474**	**473**	<87.0	**143**
Lead	50	**3.8 J**	**3.8 J**	**2.6 BJ**	**2.8 BJ**	**3.2**	**3.3**	<2.0	<2.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	**12.7 B**	**16.4 B**	**16.8 B**	**15.0 B**	<11.0
Potassium	NS	**46,100**	**50,600**	**47,300**	**50,800**	**53,400**	**53,500**	**50,400**	**52,400**
Selenium	10	<2.0 J	<2.0 J	<2.0 J	<2.0 J	<2.0 J	<2.0 J	<2.0	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**176,000**	**193,000**	**179,000**	**189,000**	**235,000 J**	**237,000 J**	**220,000**	**229,000**
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	**58.7 J**	**75.8 J**	**63.0 J**	**65.7 J**	**42.6**	**40.8**	**22.8**	**25.0**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		PK-10D	PK-10D	PK-10D	PK-10D	RB-11S	RB-11S	RB-11S	RB-11S
Sample Date:		11/4/93	11/4/93	12/1/93	12/1/93	11/3/93	11/3/93	11/30/93	11/30/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	9.7 B	9.8 B	6.3 B	7.0 B	<1.0 J	<1.0	<1.0 J	<1.0
Barium	1,000	3.0 B	2.0 B	4.2 B	10.6 B	8.6 B	9.0 B	8.1 B	22.6 B
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	2.0 B	<2.0	2.8 BJ	<2.0	<2.0	<2.0
Chromium	50	9.4 B	3.9 B	3.5 BJ	3.5 BJ	<3.0	<3.0 J	8.6 B	<3.0
Copper	1,000	<7.0	<7.0	<7.0	<7.0	13.9 B	<7.0	<7.0	<7.0
Iron	300	R	112	179	<87.0	1130	175	1,270	114
Lead	50	3.4 J	<2.0 J	1.7 BJ	<1.0	2.6 B	<2.0	3.7	<2.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	18.2 B	<11.0
Potassium	NS	<473	586 B	853 B	974 B	1,140 B	790 B	1,510 B	1,510 B
Selenium	10	<2.0 J	<2.0	<2.0	2.2 B	<2.0 J	<2.0	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	22,900	24,600	15,900	16,600	7,590	8,020	7,920	8,040
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0	<1.0	<1.0 J	<1.0 J	<1.0
Zinc	5,000	64.8 J	51.3 J	53.6 J	42.1	30.4	28.2	53.1	33.1

ug/L Micrograms per liter.
B Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J Estimated value.
R Unusable value.
NS No standard.
(a) Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: Sample Date: Parameter (concentrations in ug/L)	MCL (a)	RB-11I 11/3/93 Total	RB-11I 11/3/93 Dissolved	RB-11I (Rep-1) 11/3/93 Total	RB-11I (Rep-1) 11/3/93 Dissolved	RB-11I 11/30/93 Total	RB-11I 11/30/93 Dissolved	RB-11I (Rep-1) 11/30/93 Total	RB-11I (Rep-1) 11/30/93 Dissolved
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0 J	<1.0	<1.0 J	<1.0	<1.0 J	<1.0	<1.0 J	<1.0
Barium	1,000	**56.2 B**	**39.7 B**	**58.4 B**	**34.9 B**	**67.2 BJ**	**71.7 B**	**66.6 BJ**	**69.8 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	**2.0 BJ**	<2.0	**3.7 BJ**	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	**15.5**	<3.0 J	**14.0**	<3.0 J	<3.0	<3.0	<3.0	<3.0
Copper	1,000	**15.1 B**	<7.0	**12.6 B**	<7.0	<7.0	<7.0	<7.0	<7.0
Iron	300	**959**	**104**	**792**	**112**	**881**	<87.0	**759**	<87.0
Lead	50	**4.9**	**3.2**	**4.4**	**3.3**	**4.2**	<2.0	**4.2**	<2.0 J
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	**14.6 B**	<11.0	**21.8 B**	**12.1 B**	**14.6 B**	**13.9 B**
Potassium	NS	**1,320 B**	**1,080 B**	**1,260 B**	**1,480 B**	**1,620 B**	**1,710 B**	**1,560 B**	**1,980 B**
Selenium	10	<2.0 J	<2.0 J	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**17,400**	**18,600**	**18,200**	**17,600**	**18,500**	**18,800**	**18,700**	**18,300**
Thallium	2	<1.0	<1.0	<1.0	<1.0	<1.0 J	<1.0	<1.0 J	<1.0
Zinc	5,000	**66.9**	**62.8**	**66.1**	**68.3**	**48.6**	**44.3**	**41.2 J**	**45.6 J**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: Sample Date: Parameter (concentrations in ug/L)	MCL (a)	RB-11D 11/3/93 Total	RB-11D 11/3/93 Dissolved	RB-11D 11/30/93 Total	RB-11D 11/30/93 Dissolved	RW-12I 11/5/93 Total	RW-12I (Rep-3) 11/5/93 Total	RW-12I 11/5/93 Dissolved	RW-12I (Rep-3) 11/5/93 Dissolved
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	**29.2 B**	<21.0
Arsenic	50	<1.0 J	<1.0	<1.0 J	<1.0	<1.0	<1.0	**1.4 B**	<1.0
Barium	1,000	**9.4 B**	**7.2 B**	**6.9 B**	**24.5 B**	**46.9 B**	**46.9 B**	**39.8 B**	**40.5 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	<3.0	<3.0 J	**9.8 B**	<3.0	**6.8 B**	**5.5 B**	<3.0	**7.0 B**
Copper	1,000	**13.9 B**	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Iron	300	**975**	<87.0	**958**	<87.0	**R**	**R**	<87.0	<87.0
Lead	50	**4.6**	<2.0	**3.0**	<2.0	**4.5 J**	**2.3 BJ**	<2.0 J	<2.0 J
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	**17.8 B**	**12.8 B**	<11.0	<11.0	<11.0	<11.0
Potassium	NS	<473	<473	**787 B**	**1,210 B**	**8,100 J**	**8,110 J**	**9,690 J**	**10,100 J**
Selenium	10	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0 J	<2.0	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**4,260 B**	**4,520 B**	**4,220 B**	**4,810 B**	**53,500 J**	**52,100 J**	**59,500 J**	**60,900 J**
Thallium	2	<1.0	<1.0	<1.0 J	<1.0	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	**41.2**	**37.2**	R	R	**57.7 J**	**57.1 J**	**83.2 J**	**76.2 J**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		RW-12I	RW-12I (Rep-3)	RW-12I	RW-12I (Rep-3)	RW-12D	RW-12D	RW-12D	RW-12D
Sample Date:		12/2/93	12/2/93	12/2/93	12/2/93	11/5/93	11/5/93	12/2/93	12/2/93
		Total	Total	Dissolved	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	1.5 B	1.4 B	1.8 B	<1.0	<1.0	<1.0	<1.0	<1.0
Barium	1,000	54.0 B	55.1 B	47.7 B	48.2 B	46.9 B	18.3 B	75.2 B	49.8 B
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	3.3 B	2.4 B	<2.0	<2.0	<2.0	2.4 B	<2.0
Chromium	50	<3.0 J	<3.0 J	3.7 BJ	<3.0 J	11.9	3.1 B	<3.0 J	3.0 BJ
Copper	1,000	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	7.0 B	<7.0
Iron	300	320	342	<87.0	<87.0	R	<87.0	552	<87.0
Lead	50	2.8 BJ	3.3 J	<1.0	<1.0	7.1 J	2.7 BJ	7.1 J	<1.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0
Potassium	NS	10,300	10,300	9,670	10,300	1,880 B	2,040 B	1,850 B	1,850 B
Selenium	10	<2.0	<2.0	<2.0	<2.0	8.4 BJ	5.4	5.4	5.7
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	60,800	62,000	57,800	60,300	55,700	55,000	66,500	65,000
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	48.9 J	58.9 J	43.7	55.4	77.4 J	95.6 J	85.6 J	78.4

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID: / Sample Date: / Parameter (concentrations in ug/L)	MCL (a)	Field Blank 11/1/93 Total	Field Blank 11/1/93 Dissolved	Field Blank 11/2/93 Total	Field Blank 11/2/93 Dissolved	Field Blank 11/3/93 Total	Field Blank 11/3/93 Dissolved	Field Blank 11/4/93 Total	Field Blank 11/4/93 Dissolved
Antimony	6	**21.1 B**	<21.0	**26.6 B**	<21.0	<21.0	**23.3 B**	<21.0	<21.0
Arsenic	50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Barium	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	**2.7 BJ**	<2.0	**2.8 BJ**	<2.0	<2.0	<2.0
Chromium	50	<3.0	<3.0 J	<3.0	<3.0 J	**4.2 B**	<3.0 J	<3.0	<3.0
Copper	1,000	**28.6**	**25.0**	**16.3 B**	**8.6 B**	<7.0	<7.0	**8.6 B**	<7.0
Iron	300	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0
Lead	50	<2.0	<2.0 J	<2.0	<2.0 J	<2.0	<2.0	<2.0	<2.0 J
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0	<11.0
Potassium	NS	<473	<473	<473	<473	<473	<473	<473	<473
Selenium	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0 J	<2.0
Silver	50	**2.1 B**	**2.2 B**	**3.1 B**	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	<121	<121	<121	<121	<121	<121	<121	<121
Thallium	2	<1.0 J	<1.0	<1.0 J	<1.0	<1.0	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	R	R	**14.6 B**	**12.6 B**	<4.0	**11.3 B**	**5.7 B**	**13.4 B**

ug/L Micrograms per liter.
B Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J Estimated value.
R Unusable value.
NS No standard.
(a) Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank
Sample Date:		11/5/93	11/5/93	11/29/93	11/29/93	11/30/93	11/30/93	12/1/93	12/1/93
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)								
Antimony	6	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0	<1.0	<1.0 J	<1.0	<1.0 J	<1.0	<1.0 J	<1.0
Barium	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Beryllium	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium	50	<3.0	**3.2 B**	**3.7 B**	<3.0	<3.0	<3.0	**6.1 B**	<3.0
Copper	1,000	<7.0	<7.0	**19.8 B**	<7.0	<7.0	<7.0	<7.0	<7.0
Iron	300	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0	<87.0
Lead	50	<2.0	<2.0 J	<2.0 J	<2.0	<2.0	<2.0	<2.0	<2.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	**13.5 B**	<11.0	**13.2 B**	<11.0	<11.0	<11.0
Potassium	NS	<473	<473	**671 B**	**677 B**	<473	<473	<473	<473
Selenium	10	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0	<2.0 J	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	<121	<121	<121	<121	<121	**215 B**	**126 B**	**188 B**
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0	<1.0 J	<1.0	<1.0	<1.0
Zinc	5,000	**15.4 B**	**14.9 B**	**32.7**	**11.8 B**	**10.0 B**	**11.8 B**	**10.1 B**	**12.3 B**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-3. Concentrations of Total and Dissolved Metals Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:		Field Blank	Field Blank	Field Blank	Field Blank
Sample Date:		12/2/93	12/2/93	12/3/93	12/3/93
		Total	Dissolved	Total	Dissolved
Parameter (concentrations in ug/L)	MCL (a)				
Antimony	6	<21.0	<21.0	<21.0	<21.0
Arsenic	50	<1.0 J	<1.0	<1.0	<1.0
Barium	1,000	<2.0	<2.0	<2.0	**4.8 B**
Beryllium	4	<1.0	<1.0	<1.0	<1.0
Cadmium	5	<2.0	<2.0	**2.2 B**	**2.6 B**
Chromium	50	<3.0	<3.0	<3.0 J	<3.0 J
Copper	1,000	<7.0	<7.0	<7.0	<7.0
Iron	300	<87.0	<87.0	**489**	<87.0
Lead	50	<2.0 J	<2.0	<1.0 J	<1.0
Mercury	2	<0.20	<0.20	<0.20	<0.20
Nickel	100	<11.0	<11.0	<11.0	<11.0
Potassium	NS	<473	**605 B**	<473	<473
Selenium	10	<2.0	<2.0	<2.0	<2.0
Silver	50	<2.0	<2.0	<2.0	<2.0
Sodium	20,000	**191 B**	**125 B**	**272 B**	**460 B**
Thallium	2	<1.0 J	<1.0 J	<1.0 J	<1.0 J
Zinc	5,000	**11.8 B**	**7.0 B**	**16.9 BJ**	**16.2 B**

ug/L	Micrograms per liter.
B	Analyte concentration is between the instrument detection limit and the contract required quantitation limit.
J	Estimated value.
R	Unusable value.
NS	No standard.
(a)	Federal or State Drinking Water Standard (lowest value used), in micrograms per liter.
MCL	Maximum Contaminant Level.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-1	SY-1	SY-1D	SY-1D	SY-2R	SY-2R	SY-2D
Sample Date:	11/3/93	11/30/93	11/4/93	12/1/93	11/2/93	12/3/93	11/2/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	0.43	0.45	11.8	9.90	<0.04	0.26	4.94
Bicarbonate alkalinity, as CaCO3	45.2	44.6	123	120	38.8	35.0	100
Carbonate	<1.0	<1.00	<1.0	<1.00	<1.0	<1.00	<1.0
Chloride	54.4	52.4	285	287	449	613	108
Hardness, as CaCO3	67.2	59.6	222	224	135	121	68.4
Nitrate-nitrogen	<0.10	0.29	6.21	6.19	2.42	2.41	1.20
Sulfate	20.2	16.0	146	150	56.0	58.4	22.6
Total dissolved solids	189	269	798	803	861	850	282

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-2D	SY-3	SY-3	SY-3D	SY-3D	SY-3DD	SY-3DD
Sample Date:	12/3/93	11/2/93	12/3/93	11/2/93	12/3/93	11/1/93	11/29/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	6.98	67.8	123	146	83.6	<0.04	<0.04
Bicarbonate alkalinity, as CaCO3	81.6	716	727	1,180	1,020	14.4	9.60
Carbonate	<1.00	1.28	<1.00	2.72	1.20	<1.0	<1.00
Chloride	97.0	136	176	269	265	4.20	4.5
Hardness, as CaCO3	58.4	362	348	470	468	7.6	6.6
Nitrate-nitrogen	1.39	<0.10	<0.10	0.22	0.46	<0.10	0.32
Sulfate	16.5	32.9	25.9	27.2	22.6	1.8	11.9
Total dissolved solids	299	726	757	1,240	1,400	44.0	54.0

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-4	SY-4	SY-6	SY-6	SY-6D	SY-6D	SY-7
Sample Date:	11/2/93	12/3/93	11/5/93	12/2/93	11/1/93	11/29/93	11/4/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	33.8	30.5	0.06	0.09	0.29	0.27	0.97
Bicarbonate alkalinity, as CaCO3	446	449	195	202	19.8	9.80	32.2 J
Carbonate	<1.0	<1.00	<1.0	<1.00	<1.0	<1.00	<1.0 J
Chloride	152	155	43.0	34.3	77.9	87.4	399
Hardness, as CaCO3	346	347	176	181	84.0	81.0	260
Nitrate-nitrogen	5.10	1.85	2.57	2.26	6.03	6.64	0.31
Sulfate	77.8	72.0	10.3	19.8	71.6	63.0	52.7
Total dissolved solids	763	794	287	323	261	293	794

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	SY-7	SY-8	SY-8	SY-9	SY-9	PK-10S	PK-10S
Sample Date:	12/2/93	11/4/93	12/1/93	11/1/93	11/29/93	11/4/93	12/1/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	0.36	0.21	0.13	0.76	0.61	0.36	0.06
Bicarbonate alkalinity, as CaCO3	112	59.8	62.0	190	131	23.2	24.2
Carbonate	<1.00	<1.0	<1.00	<1.0	<1.00	<1.0	<1.00
Chloride	808	32.3	32.7	39.3	47.2	16.2	13.7
Hardness, as CaCO3	282	103	106	246	172	68.8	67.8
Nitrate-nitrogen	<0.10	<0.10	<0.10	<0.10	0.07	7.33	8.04
Sulfate	58.9	78.2	80.7	68.3	4,530	39.9	51.4
Total dissolved solids	1,050	218	49.0	346	312	162	181

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	PK-10I	(Rep-2)	PK-10I	(Rep-2)	PK-10D	PK-10D	RB-11S
Sample Date:	11/4/93	11/4/93	12/1/93	12/1/93	11/4/93	12/1/93	11/3/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	39.1	39.3	37.9	41.0	<0.04	<0.04	<0.04
Bicarbonate alkalinity, as CaCO3	404	400 J	419	419	24.6	17.8	15.6
Carbonate	<1.0	<1.0 J	<1.00	<1.00	<1.0	<1.00	<1.0
Chloride	291	287	678	499	14.0	14.2	8.0
Hardness, as CaCO3	285	285	312	310	12.2	12.2	17.4
Nitrate-nitrogen	0.39	0.51	0.21	0.21	0.90	0.90	4.42
Sulfate	88.9	109	110	113	15.6	11.5	<10.0
Total dissolved solids	918	948	1,020	1,030	87.0	85.0	47.0

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	RB-11S	RB-11I	(Rep-1)	RB-11I	(Rep-1)	RB-11D	RB-11D
Sample Date:	11/30/93	11/3/93	11/3/93	11/30/93	11/30/93	11/3/93	11/30/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	**0.09**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Bicarbonate alkalinity, as CaCO3	**17.8**	**14.0**	**13.0**	**11.6**	**10.8**	**8.20**	**7.60**
Carbonate	<1.00	<1.0	<1.0	<1.00	<1.00	<1.0	<1.00
Chloride	**6.4**	**29.7**	**29.4**	**27.9**	**28.3**	**3.40**	<3.0
Hardness, as CaCO3	**19.2**	**87.2**	**86.6**	**89.8**	**89.4**	**3.60**	**4.4**
Nitrate-nitrogen	**2.15**	**13.2**	**12.9**	**13.3**	**13.4**	**0.24**	**0.62**
Sulfate	<10.0	**41.6**	**42.4**	<10.0	**34.2**	<10.0	<10.0
Total dissolved solids	**81.0**	**186**	**179**	**252**	**216**	**17.0**	**61.0**

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-4. Concentrations of Leachate Indicator Parameters Detected in Groundwater Samples Collected from Monitoring Wells During the Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York.

Sample ID:	RW-12I	(Rep-3)	RW-12I	(Rep-3)	RW-12D	RW-12D	Field Blank
Sample Date:	11/5/93	11/5/93	12/2/93	12/2/93	11/5/93	12/2/93	11/3/93
Parameter (concentrations in mg/L)							
Ammonia-nitrogen	16.2	17.6	14.9	13.4	<0.04	0.11	NR
Bicarbonate alkalinity, as CaCO3	167	446	162	162	73.8	80.4	NR
Carbonate	<1.0	<1.0	<1.00	<1.00	<1.0	<1.00	NR
Chloride	106	106	118	117	122	139	NR
Hardness, as CaCO3	169	166	164	161	132	144	<1.0
Nitrate-nitrogen	2.56	3.47	4.18	4.04	1.09	0.10	NR
Sulfate	30.5	33.8	48.2	46.1	31.7	54.3	NR
Total dissolved solids	345	348	408	422	320	511	NR

mg/L Milligrams per liter.
NR Not requested.
CaCO3 Calcium carbonate.
J Estimated value.

Table 3-5. Summary of Gas Well Monitoring Data, Syosset Landfill, Syosset, New York.

Well No.	February 25, 1994 Barometer (a) (inches of mercury)	Total VOCs (b) (ppmv)	Methane (c) (ppmv)	Barometer (a) (inches of mercury)	March 2, 1994 Barometer (a) (inches of mercury)	Total VOCs (b) (ppmv)	Methane (c) (ppmv)	Barometer (a) (inches of mercury)
G-6	30.01	--	0.6	29.98	30.41	--	--	30.23
G-7		20	520			20	--	
G-8 (d)		(d)	(d)			(d)	(d)	
G-10 (e)		(e)	(e)			(e)	(e)	
G-13		--	--			--	--	
G-14		--	--			--	--	
CS-20		--	--			--	--	
CS-21		--	--			--	--	
CS-22		--	--			--	--	

Well No.	March 7, 1994 Barometer (a) (inches of mercury)	Total VOCs (b) (ppmv)	Methane (c) (ppmv)	Barometer (a) (inches of mercury)
G-6	30.17	--	--	30.06
G-7		100	100	
G-8 (d)		(d)	(d)	
G-10 (e)		(e)	(e)	
G-13		--	--	
G-14		--	--	
CS-20		--	--	
CS-21		--	--	
CS-22		--	--	

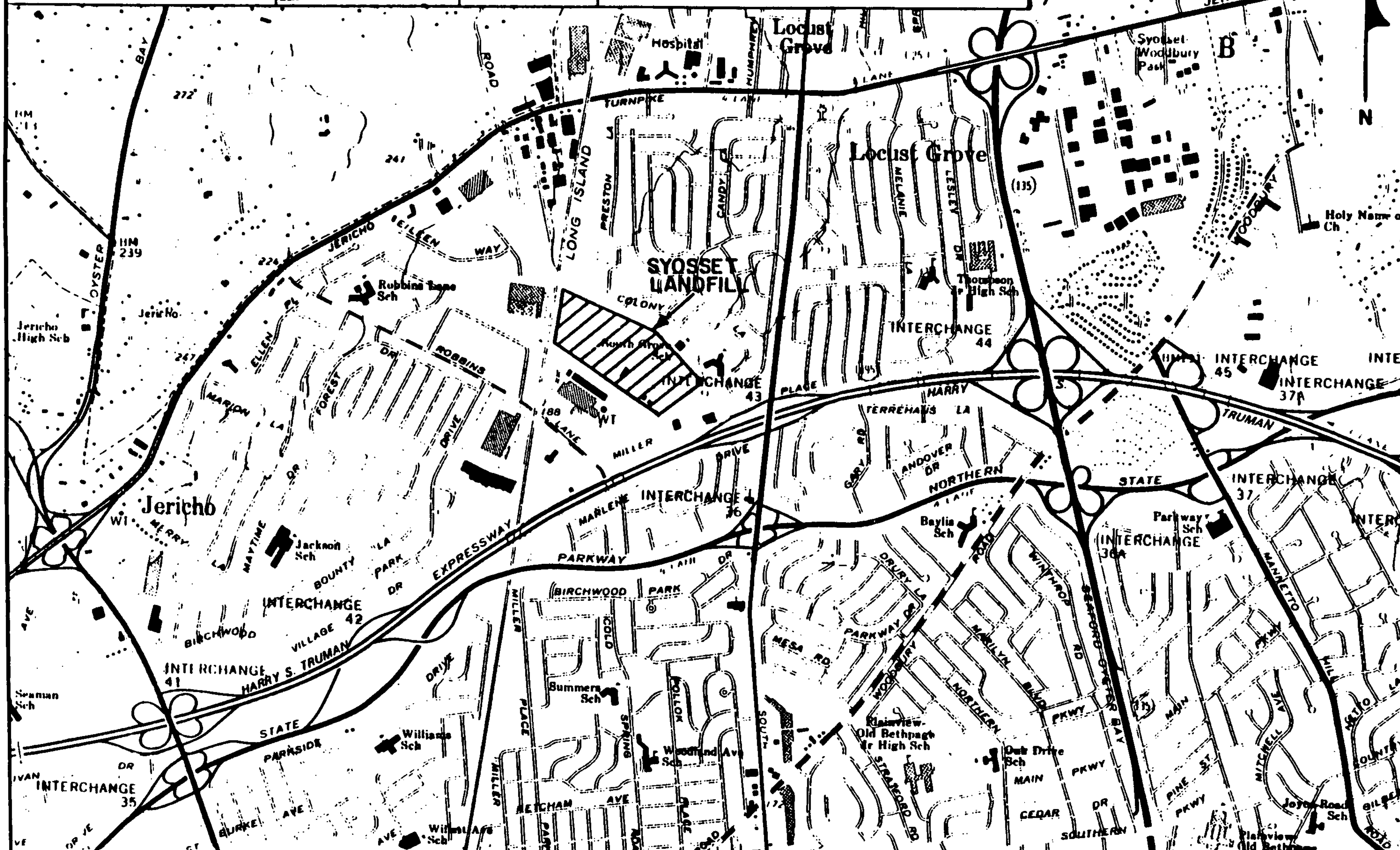
Measurements made in field by Geraghty & Miller, Inc. using a Foxboro Model 128 organic vapor analyzer (OVA). Instrument calibrated using zero gas and methane standards.

(a) Barometer readings obtained from Newsday Weather Service before and after each measurement round.
(b) Measurements made using a standard OVA probe.
(c) Measurements made using an activated charcoal-filter OVA probe.
(d) Well destoyed.
(e) Well could not be located.
ppmv Parts per million by volume.
-- Not detected.

FIGURES

GERAGHTY & MILLER, INC.
Ground-Water Consultants

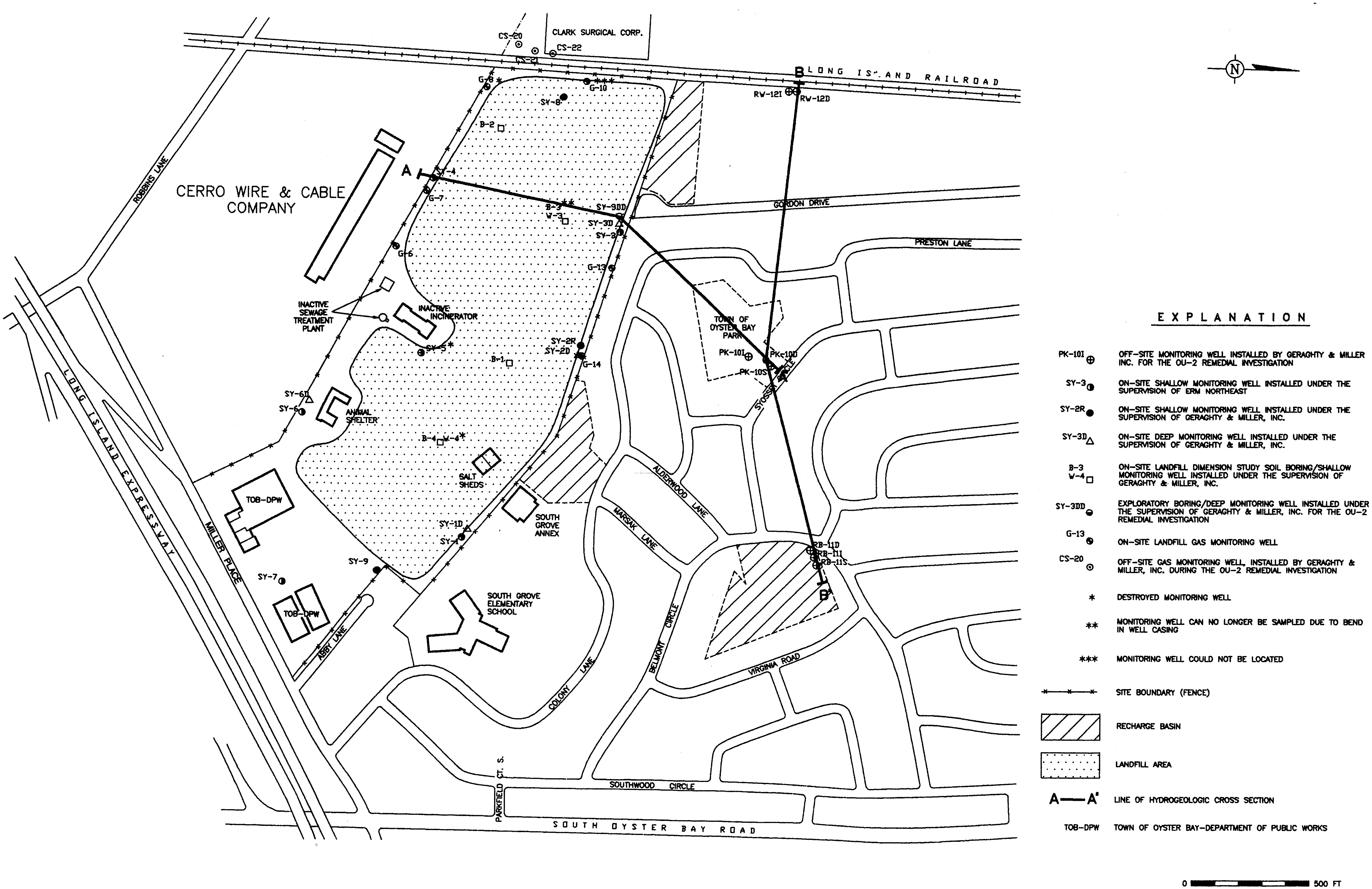
COMPILED BY: VINCE GLASSER	DATE: 10/88	SCALE: SHOWN	PREPARED FOR: LOCKWOOD, KESSLER & BARLETT Syosset, New York
PREPARED BY: ELAINE DeLUCA	FILE NO: N0340SL03-1115		
PROJECT MGR: VINCE GLASSER			



0 2000 FT
SCALE

SUBJECT: SITE LOCATION, Syosset Landfill, Syosset, New York

FIGURE 1-1



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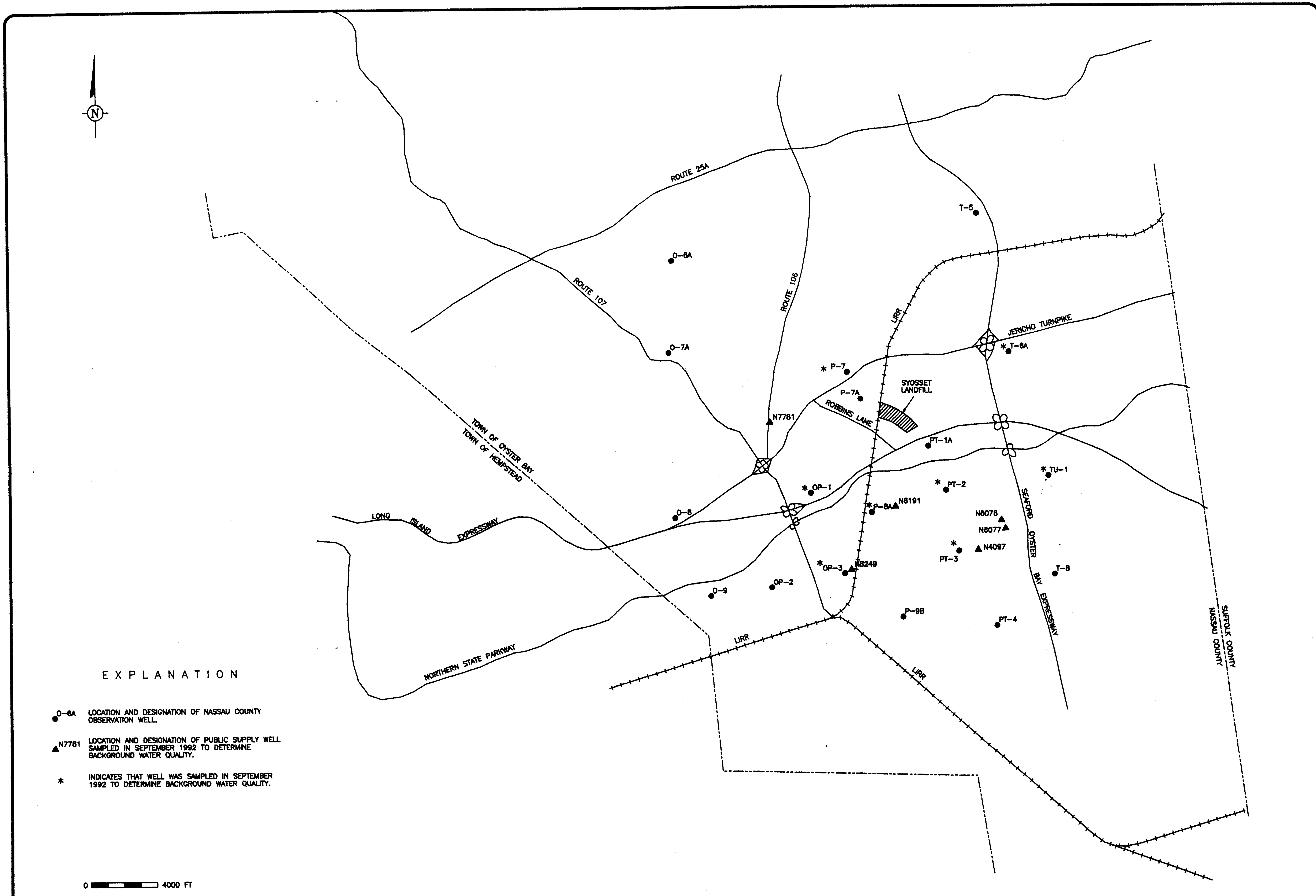
DRAWING: LINEWELL	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

LOCATIONS OF GROUNDWATER MONITORING WELLS, GAS MONITORING WELLS, SOIL BORINGS, AND LINES OF HYDROGEOLGIC CROSS SECTION, SYOSSET LANDFILL SYOSSET, NEW YORK

FIGURE 1-2



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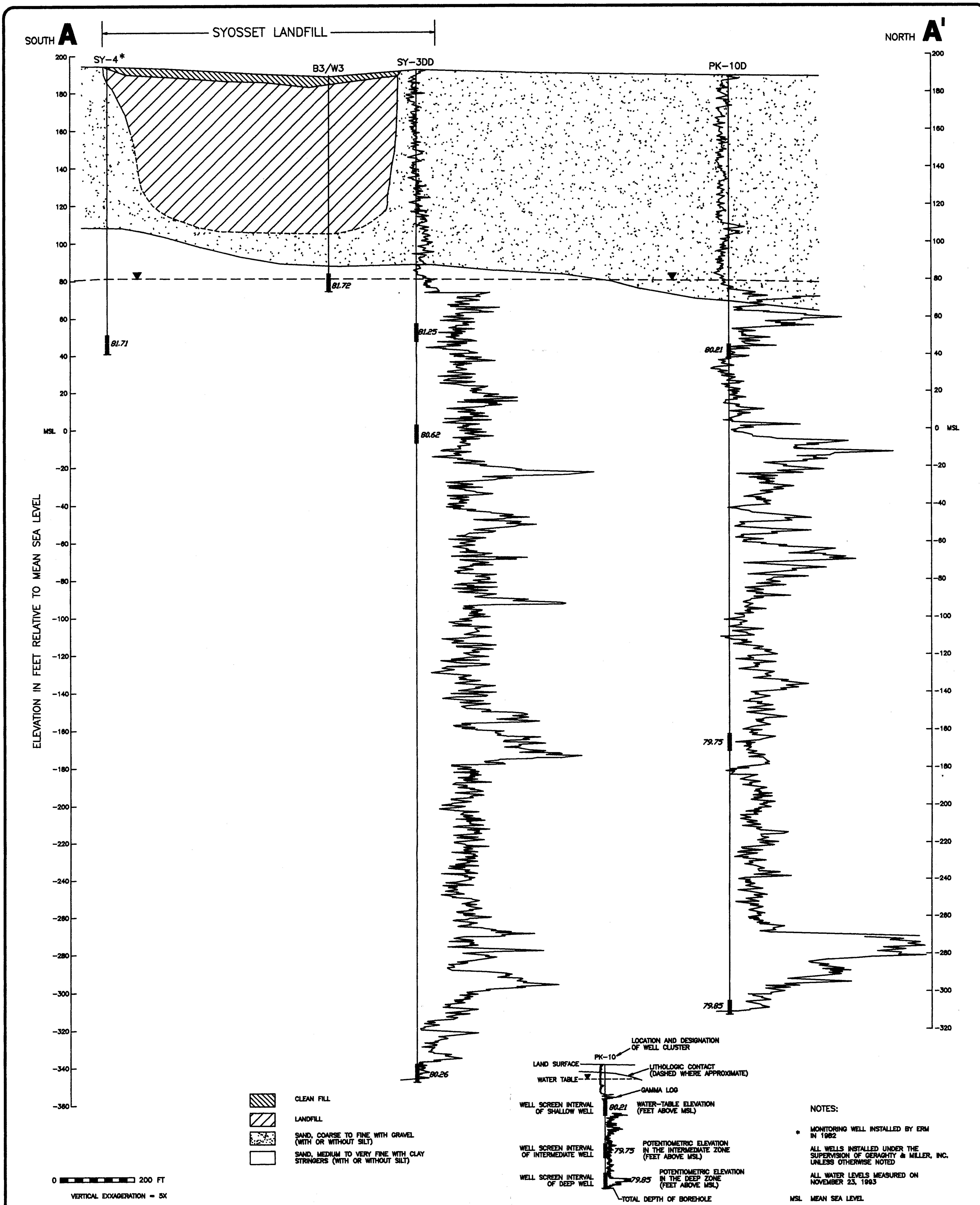
PROJECT NO.: NY0640002	FILE NO: 1584
DRAWING: BASE-94	PLOT SIZE: 1"=4000'
DRAFTED BY: VC	DATE: 3/11/94
CHECKED BY: VJG	DATE: -
APPROVED BY: LH	DATE: -

LOCATIONS OF NASSAU COUNTY MONITORING WELLS AND SELECTED PUBLIC SUPPLY WELLS WITHIN APPROXIMATELY 2 MILES OF THE SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 2-1



GERAGHTY & MILLER, INC.
Environmental Services

SCALE VERIFICATION

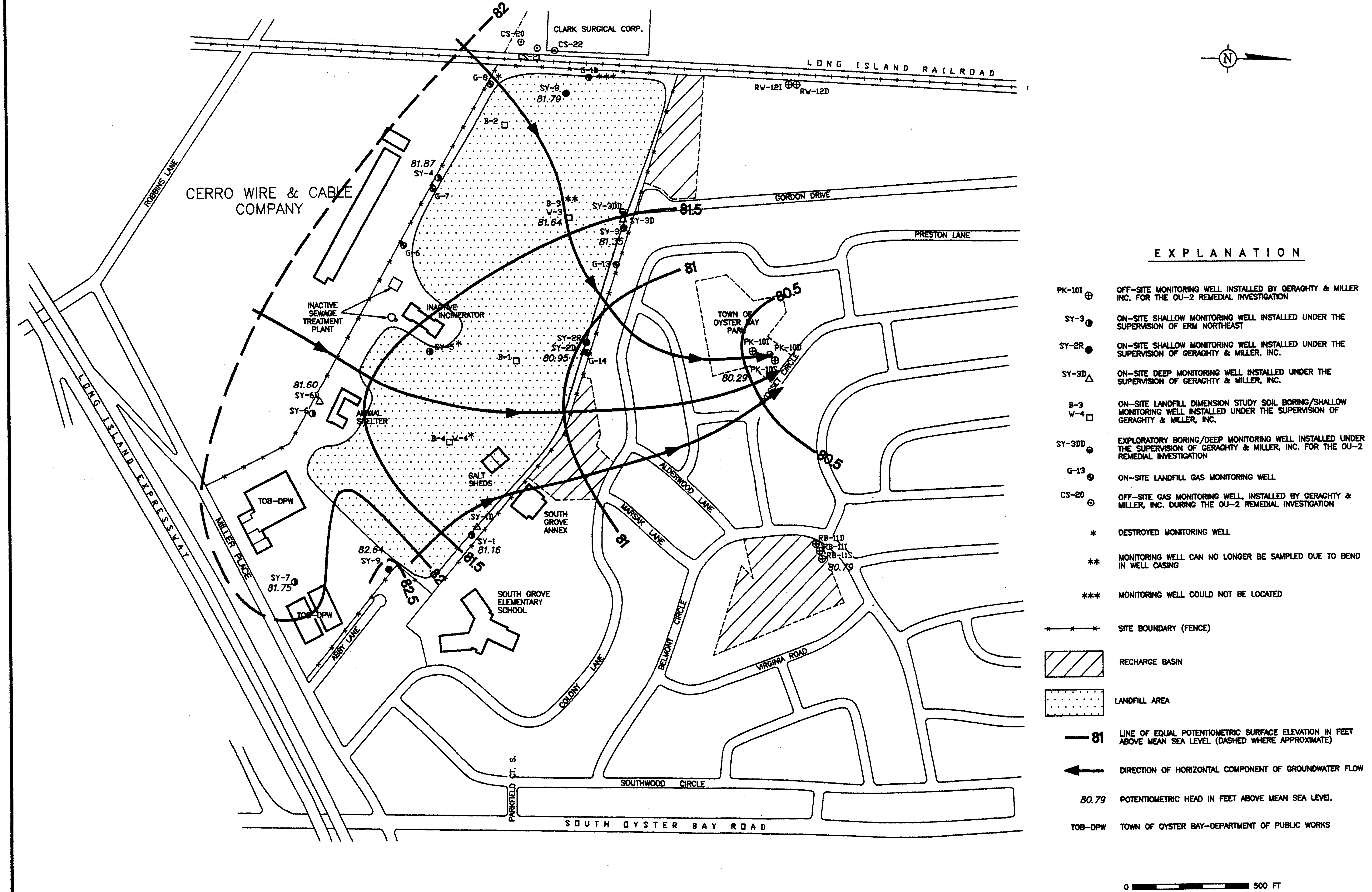
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING

USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: SEC-AAG	PLOT SIZE:
DRAFTED BY: GS	DATE: 11-21-95
CHECKED BY: LH	DATE:
APPROVED BY: VJG	DATE:

NORTH–SOUTH HYDROGEOLOGIC CROSS SECTION A–A'
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-1



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SCALE VERIFICATION
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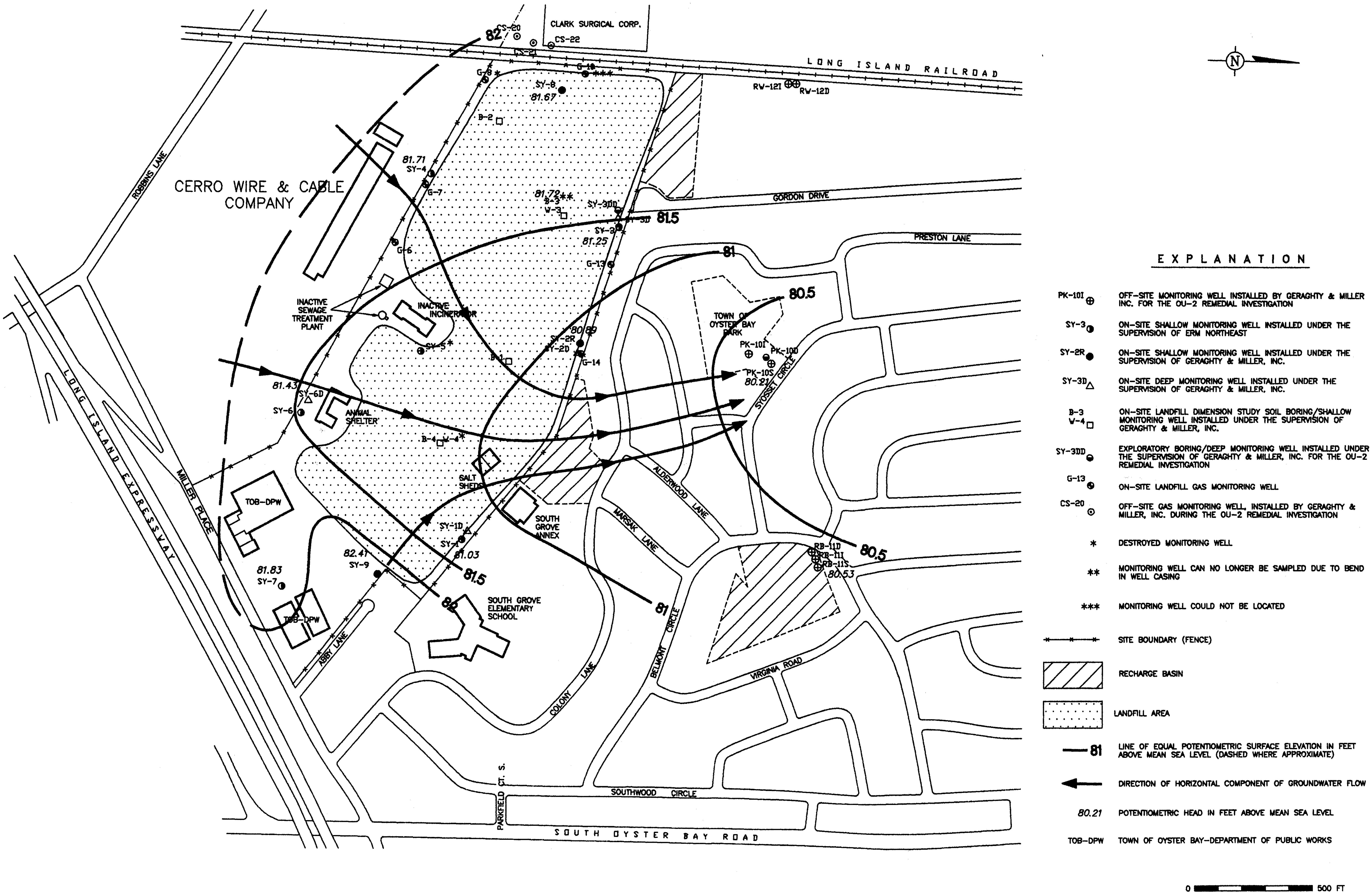
PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: SZ-1093	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/8/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

POTENTIOMETRIC SURFACE OF THE SHALLOW ZONE OF THE MAGOTHY AQUIFER ON OCTOBER 28, 1993
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-4



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SCALE VERIFICATION
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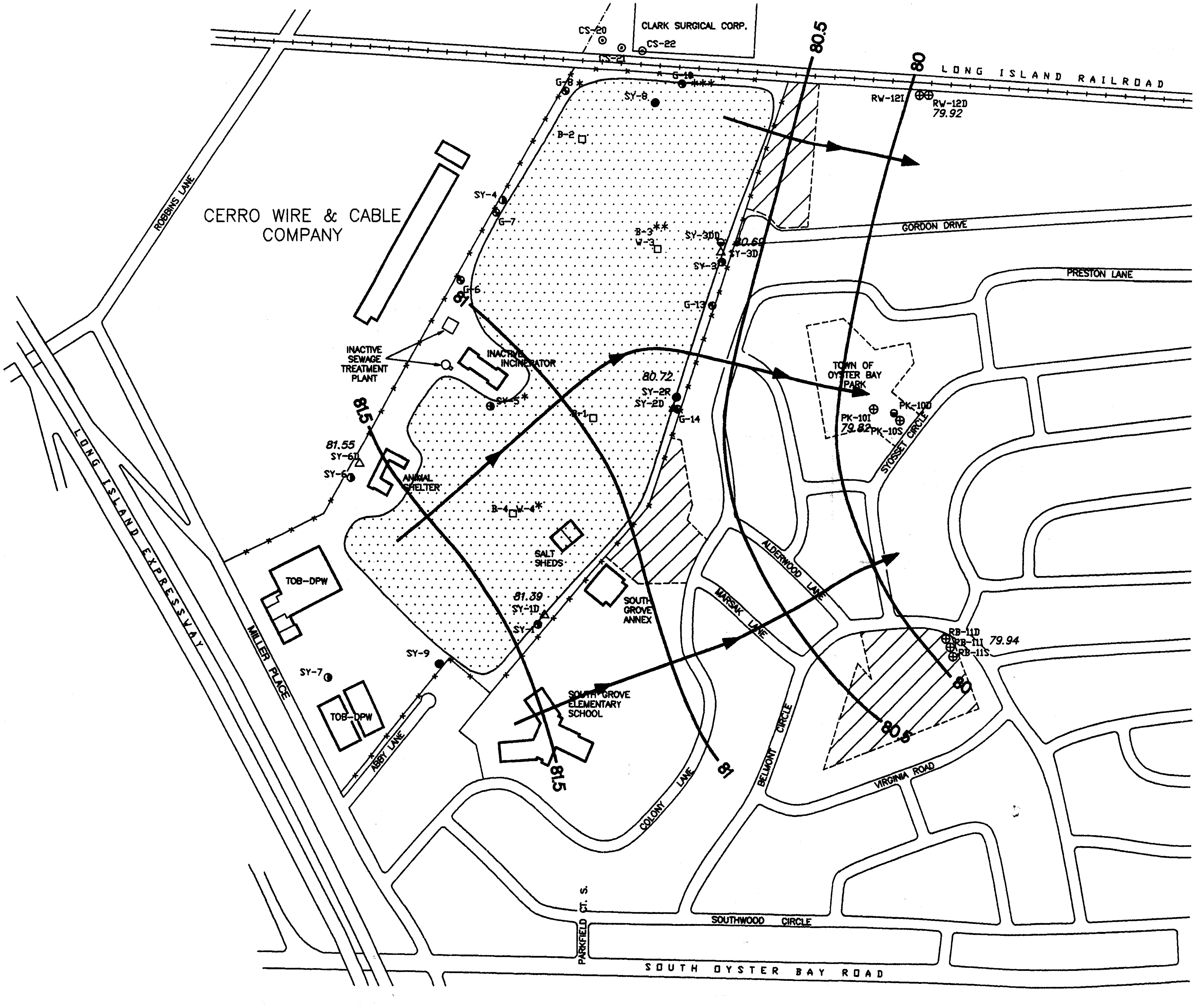
PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: SZ-1193	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

POTENTIOMETRIC SURFACE OF THE SHALLOW ZONE OF THE MAGOTHY AQUIFER ON NOVEMBER 24, 1993
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-5



EXPLANATION

PK-10I ⊕	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3 ◑	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R ●	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D △	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4 □	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20 ⊙	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
—x—x—	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
—81	LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
←	DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW
80.79	POTENTIOMETRIC HEAD IN FEET ABOVE MEAN SEA LEVEL
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

0 500 FT

GERAGHTY & MILLER, INC.
Environmental Services

SCALE VERIFICATION
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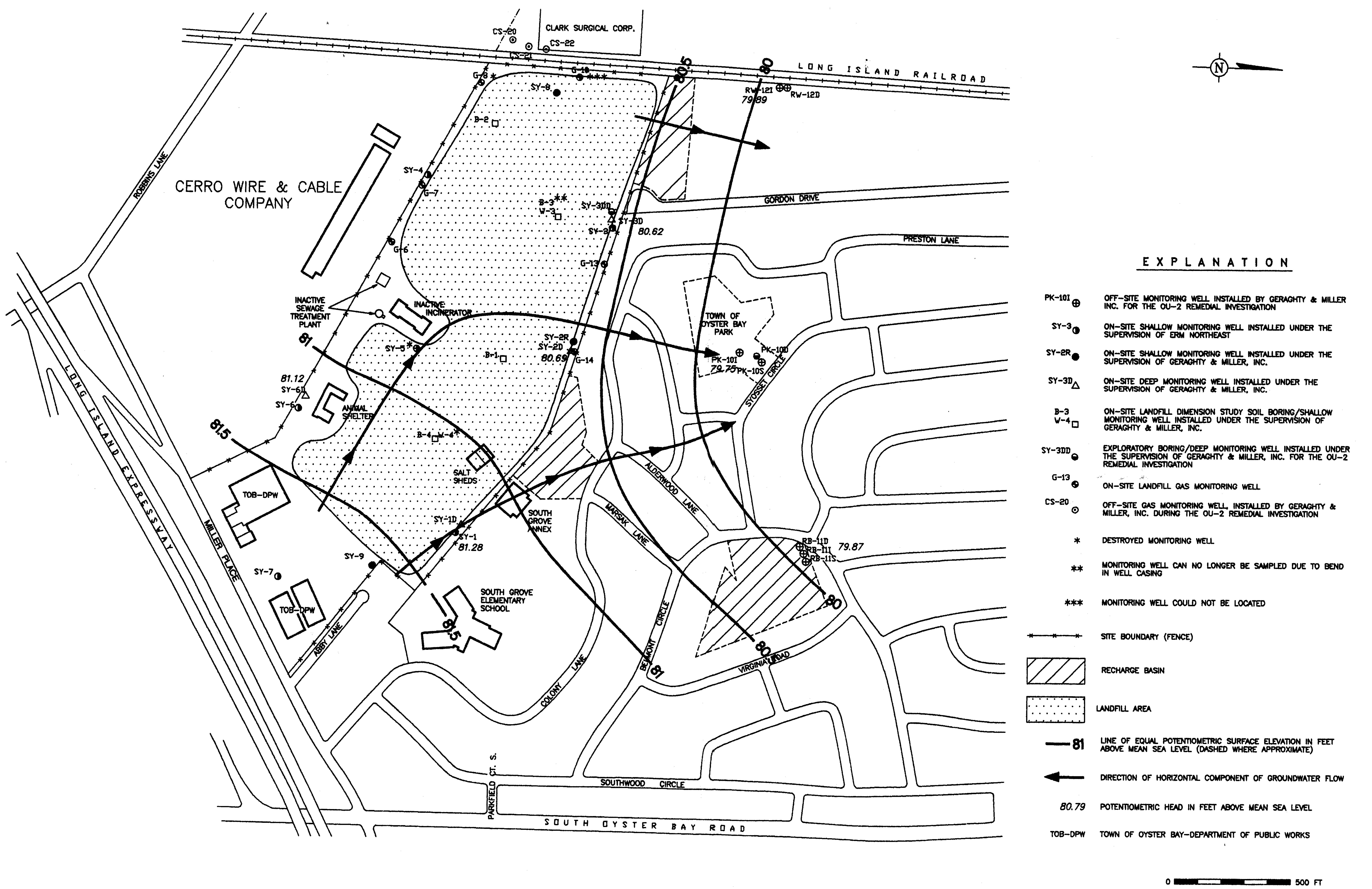
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: IZ-1093	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

POTENTIOMETRIC SURFACE OF THE INTERMEDIATE ZONE OF THE MAGOTHY AQUIFER ON OCTOBER 28, 1993
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-6



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SCALE VERIFICATION
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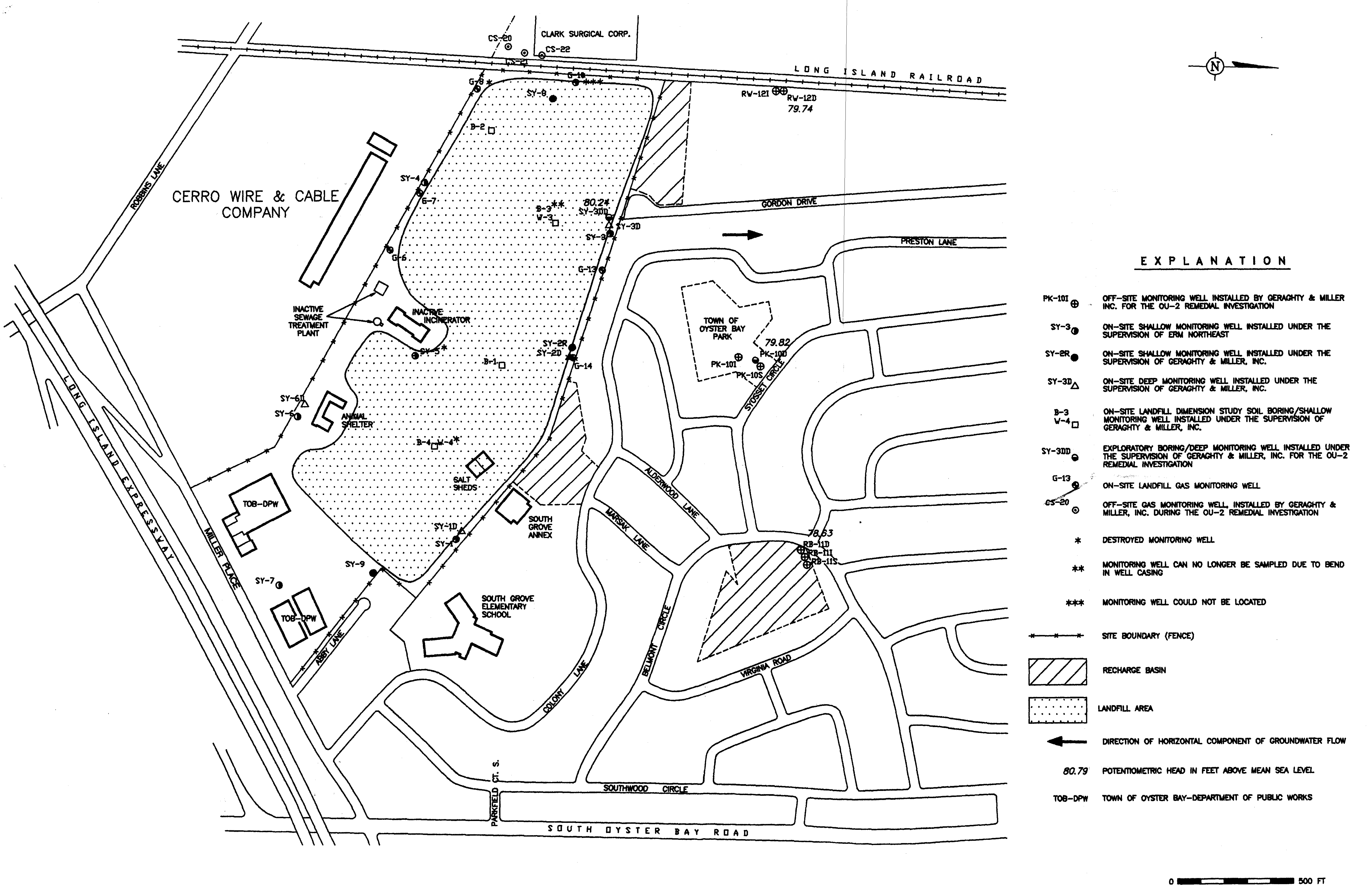
PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: IZ-1193	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

POTENTIOMETRIC SURFACE OF THE INTERMEDIATE ZONE OF THE MAGOTHY AQUIFER ON NOVEMBER 24, 1993
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE
3-7



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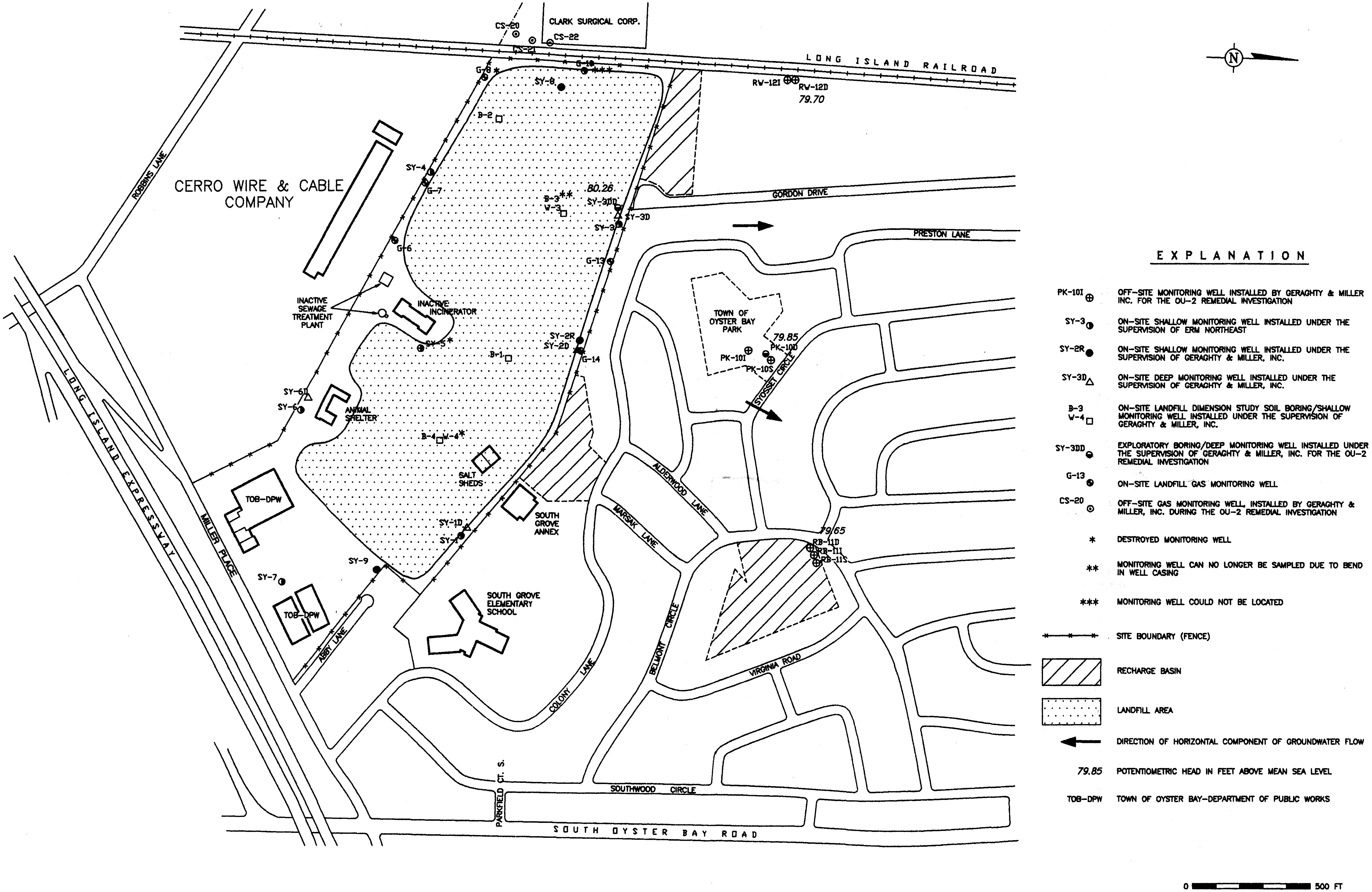
PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: DZ-1093	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

APPROXIMATE DIRECTION OF GROUNDWATER FLOW IN THE DEEP ZONE OF THE MAGOTHY AQUIFER ON OCTOBER 28, 1993 SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE
3-8



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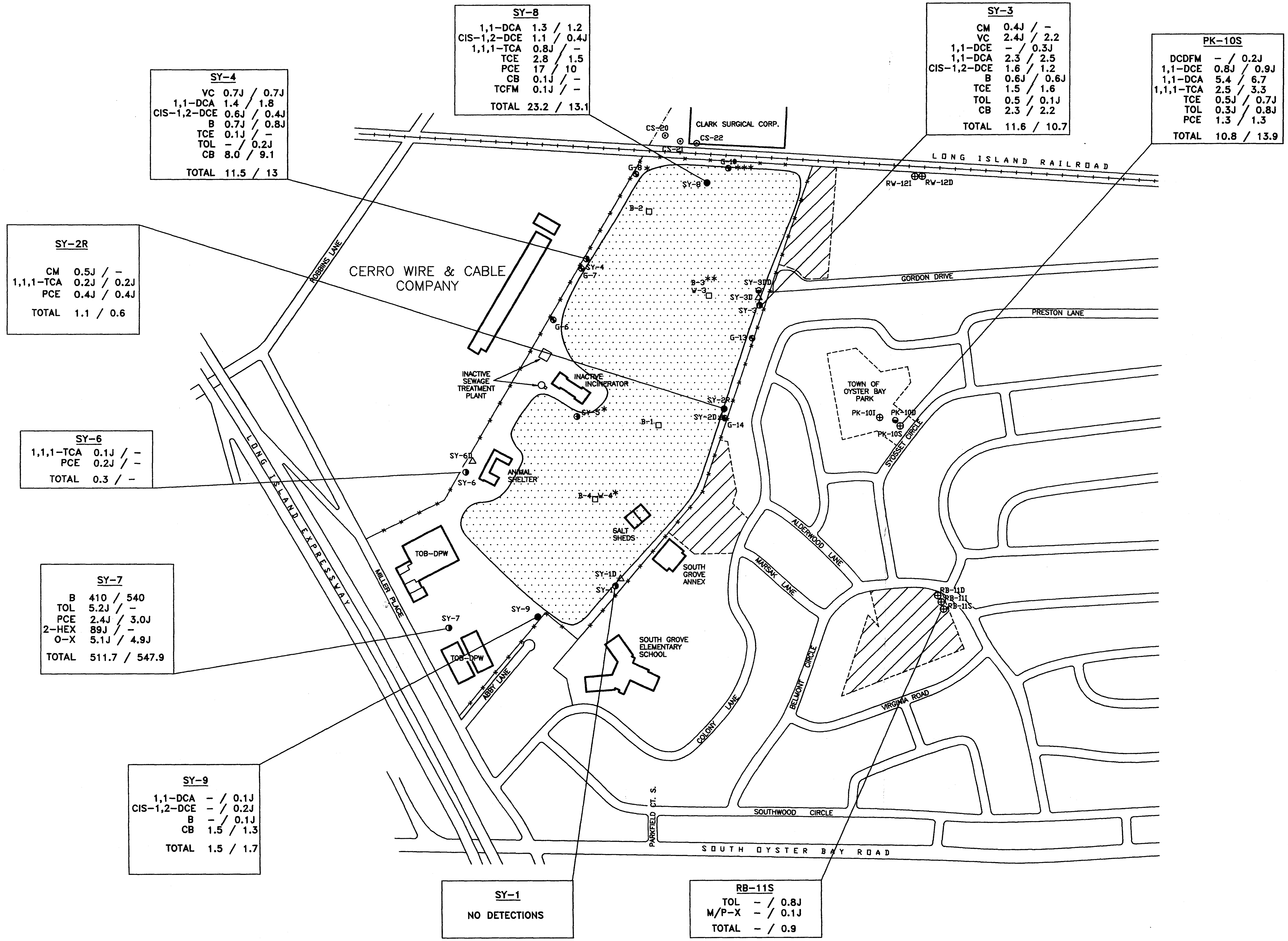
PROJECT NO.: NY0029008	FILE NO: 1584
DRAWING: DZ-1193	PLOT SIZE: 1"=300'
DRAFTED BY: VC	DATE: 3/9/94
CHECKED BY: SZ	DATE:
APPROVED BY: VG	DATE:

APPROXIMATE DIRECTION OF GROUNDWATER FLOW IN THE DEEP ZONE OF THE MAGOTHY AQUIFER ON NOVEMBER 24, 1993 SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-9



N

EXPLANATION

PK-10I	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
CM	CHLOROMETHANE
VC	VINYL CHLORIDE
1,1-DCE	1,1 DICHLOROETHENE
1,1-DCA	1,1 DICHLOROETHANE
CIS-1,2-DCE	CIS 1,2 DICHLOROETHENE
1,1,1-TCA	1,1,1 TRICHLOROETHANE
B	BENZENE
TCE	TRICHLOROETHENE
TOL	TOLUENE
PCE	TETRACHLOROETHENE
CB	CHLOROBENZENE
TCFM	TRICHLOROFLUOROMETHANE
2-HEX	2-HEXANONE
DCDFM	DICHLORODIFLUOROMETHANE
O-X	ORTHO-XYLENE
M/P-X	META/PARA XYLENE
–	NOT DETECTED
J	ESTIMATED VALUE
/	CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS FOR NOVEMBER/DECEMBER SAMPLING ROUND IN MICROGRAMS PER LITER (ug/L)
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

GERAGHTY & MILLER, INC.
Environmental Services

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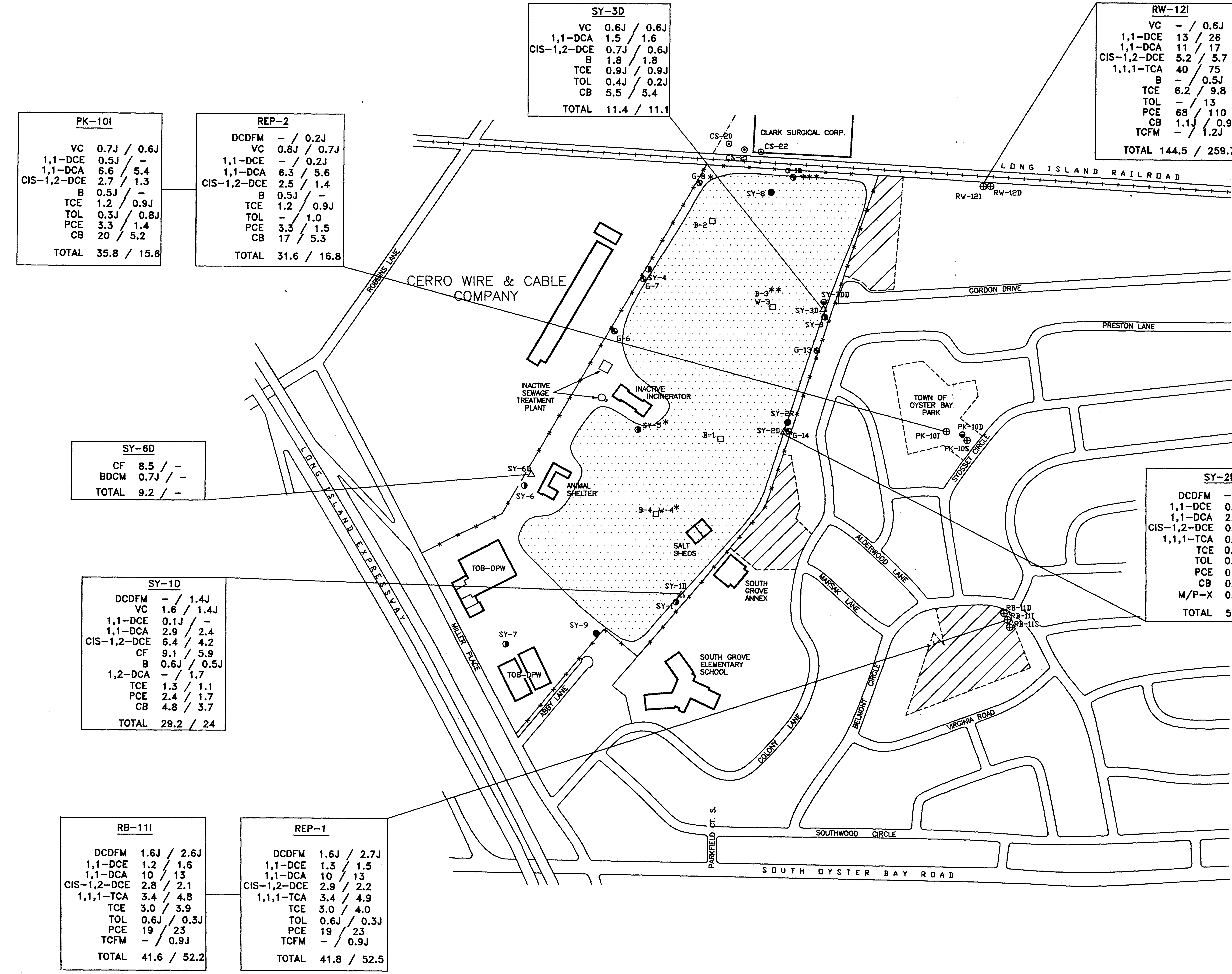
REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029006 — FILE NO: 1584
DRAWING: VOC-SHAL — PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO — DATE: 3/10/94
CHECKED BY: L. HENDRICKS — DATE: –
APPROVED BY: V. GLASSER — DATE: –

CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN SITE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-10



EXPLANATION

PK-10I ⊕	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3 ◑	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R ●	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D △	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4 □	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20 ⊙	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
—×—×—	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
VC	VINYL CHLORIDE
1,1-DCE	1,1 DICHLOROETHENE
1,1-DCA	1,1 DICHLOROETHANE
CIS-1,2-DCE	CIS 1,2 DICHLOROETHENE
1,1,1-TCA	1,1,1 TRICHLOROETHANE
B	BENZENE
TCE	TRICHLOROETHENE
TOL	TOLUENE
PCE	TETRACHLOROETHENE
CB	CHLOROBENZENE
TCFM	TRICHLOROFLUOROMETHANE
BDCM	BROMODICHLOROMETHANE
DCDFM	DICHLORODIFLUOROMETHANE
M/P-X	META/PARA-XYLENE
–	NOT DETECTED
J	ESTIMATED VALUE
/	CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS FOR NOVEMBER/DECEMBER SAMPLING ROUND IN MICROGRAMS PER LITER (ug/L)
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

GERAGHTY & MILLER, INC.
Environmental Services

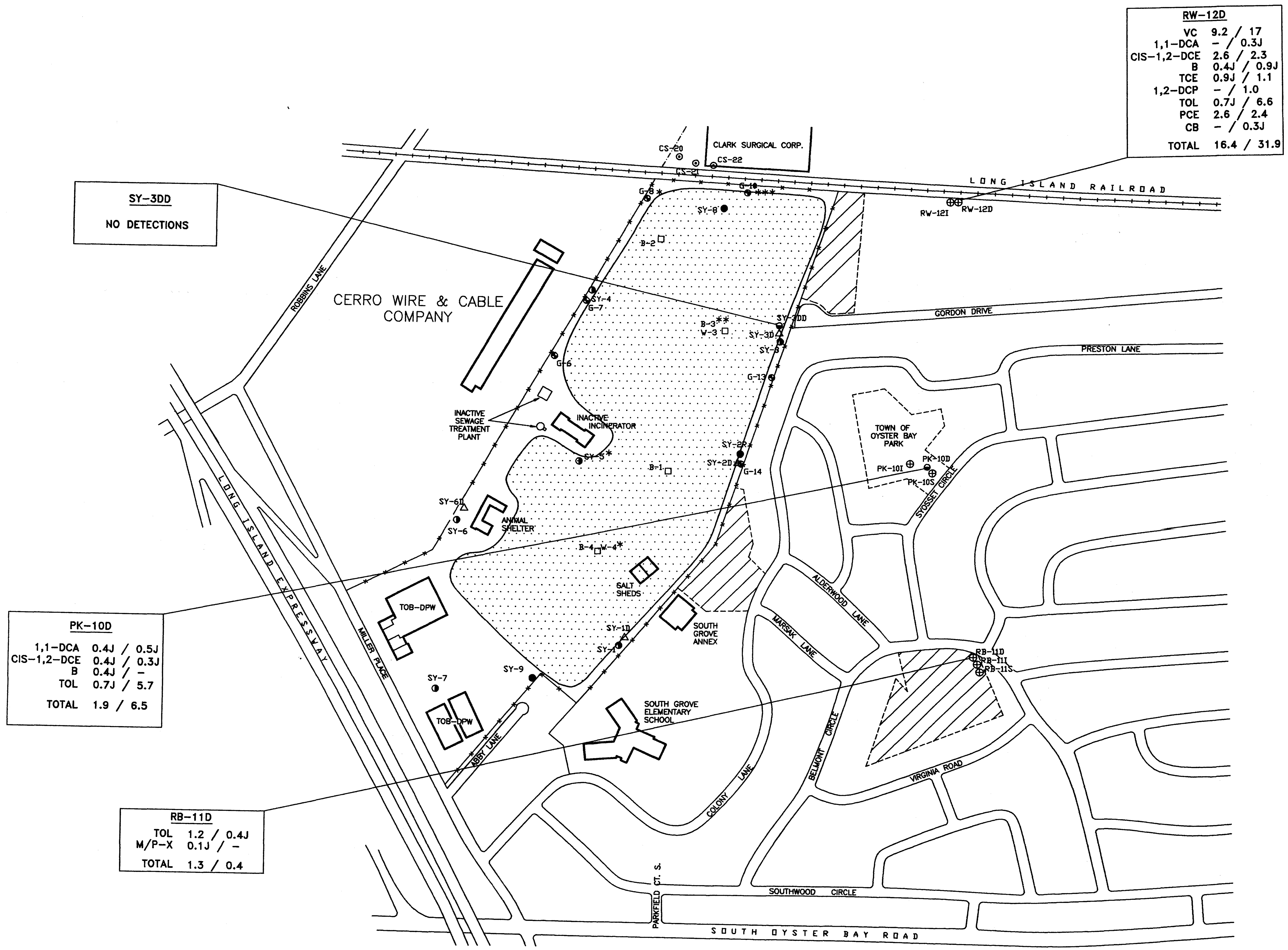
SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029006	FILE NO: 1584
DRAWING: VOC-INT	PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO	DATE: 3/10/94
CHECKED BY: L. HENDRICKS	DATE: –
APPROVED BY: V. GLASSER	DATE: –

CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN SITE MONITORING WELLS SCREENED IN THE INTERMEDIATE ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-11



EXPLANATION

- PK-10I — OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
- SY-3 — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
- SY-2R — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
- SY-3D — ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
- B-3, W-4 — ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
- SY-3DD — EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
- G-13 — ON-SITE LANDFILL GAS MONITORING WELL
- CS-20 — OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
- * DESTROYED MONITORING WELL
- ** MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
- *** MONITORING WELL COULD NOT BE LOCATED
- SITE BOUNDARY (FENCE)
- RECHARGE BASIN
- LANDFILL AREA
- VC — VINYL CHLORIDE
- 1,1-DCA — 1,1 DICHLOROETHANE
- CIS-1,2-DCE — CIS 1,2 DICHLOROETHENE
- B — BENZENE
- TCE — TRICHLOROETHENE
- TOL — TOLUENE
- PCE — TETRACHLOROETHENE
- CB — CHLOROBENZENE
- M/P-X — META/PARA XYLENE
- 1,2-DCP — 1,2-DICHLOROPROPANE
- – NOT DETECTED
- J — ESTIMATED VALUE
- / — CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS FOR NOVEMBER/DECEMBER SAMPLING ROUND IN MICROGRAMS PER LITER (ug/L)
- TOB-DPW — TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

GERAGHTY & MILLER, INC.
Environmental Services

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REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029006	FILE NO. 1584
DRAWING: VOC-DEEP	PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO	DATE: 3/10/94
CHECKED BY: L. HENDRICKS	DATE: –
APPROVED BY: V. GLASSER	DATE: –

CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS DETECTED IN SITE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-12

SY-8

AMMONIA	0.21 / 0.13
ALKALINITY	59.8 / 62
CHLORIDE	32.3 / 32.7
HARDNESS	103 / 106
NITRATE	– / –
SULFATE	78.2 / 80.7
TDS	218 / 49

SY-3

AMMONIA	67.8 / 123
ALKALINITY	716 / 727
CHLORIDE	136 / 176
HARDNESS	362 / 348
NITRATE	– / –
SULFATE	32.9 / 25.9
TDS	726 / 757

PK-10S

AMMONIA	0.35 / 0.05
ALKALINITY	23.2 / 24.2
CHLORIDE	15.2 / 13.7
HARDNESS	68.8 / 67.8
NITRATE	7.33 / 8.04
SULFATE	39.9 / 51.4
TDS	162 / 181

SY-4

AMMONIA	33.8 / 30.5
ALKALINITY	446 / 449
CHLORIDE	152 / 155
HARDNESS	346 / 347
NITRATE	5.10 / 1.85
SULFATE	77.8 / 72
TDS	763 / 794

RB-11S

AMMONIA	– / 0.09
ALKALINITY	15.6 / 17.8
CHLORIDE	8.0 / 6.4
HARDNESS	17.4 / 19.2
NITRATE	4.42 / 2.15
SULFATE	– / –
TDS	47 / 81

SY-2R

AMMONIA	– / 0.26
ALKALINITY	38.8 / 35
CHLORIDE	449 / 613
HARDNESS	135 / 121
NITRATE	2.42 / 2.41
SULFATE	56 / 58.4
TDS	861 / 850

SY-6

AMMONIA	0.06 / 0.09
ALKALINITY	195 / 202
CHLORIDE	43 / 34.3
HARDNESS	176 / 181
NITRATE	2.57 / 2.26
SULFATE	10.3 / 19.8
TDS	287 / 323

SY-7

AMMONIA	0.97 / 0.35
ALKALINITY	32.2J / 112
CHLORIDE	399 / 808
HARDNESS	260 / 282
NITRATE	0.31 / –
SULFATE	52.7 / 58.9
TDS	794 / 1,050

SY-9

AMMONIA	0.76 / 0.61
ALKALINITY	190 / 131
CHLORIDE	39.3 / 47.2
HARDNESS	246 / 172
NITRATE	– / 0.07
SULFATE	68.3 / 4,530
TDS	346 / 312

SY-1

AMMONIA	0.43 / 0.45
ALKALINITY	45.2 / 44.6
CHLORIDE	54.4 / 52.4
HARDNESS	67.2 / 59.6
NITRATE	– / 0.29
SULFATE	20.2 / 16.0
TDS	189 / 269

GERAGHTY & MILLER, INC.
Environmental Services

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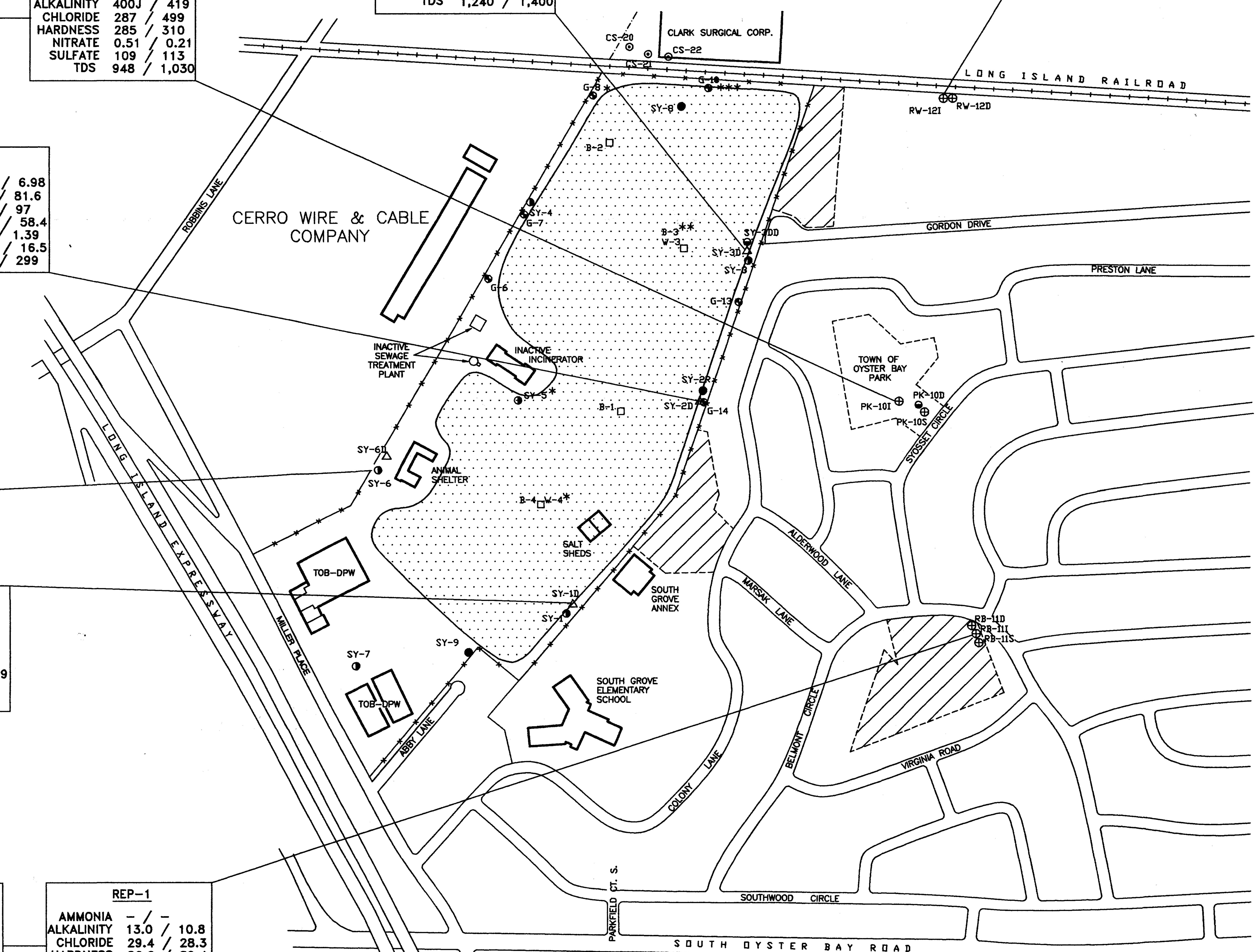
REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029006	FILE NO: 1584
DRAWING: LEACH-S	PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO	DATE: 3/10/94
CHECKED BY: L. HENDRICKS	DATE: –
APPROVED BY: V. GLASSER	DATE: –

CONCENTRATIONS OF LEACHATE INDICATOR PARAMETERS DETECTED IN SITE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE MAGOTHY AQUIFER
SECOND OPERABLE UNIT REMEDIAL INVESTIGATION
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-13



SY-3D

AMMONIA	146 / 83.6
ALKALINITY	1,180 / 1,020
CHLORIDE	269 / 265
HARDNESS	470 / 468
NITRATE	0.22 / 0.46
SULFATE	27.2 / 22.6
TDS	1,240 / 1,400

RW-12I

AMMONIA	16.2 / 14.9
ALKALINITY	167 / 162
CHLORIDE	106 / 118
HARDNESS	169 / 164
NITRATE	2.56 / 4.18
SULFATE	30.5 / 48.2
TDS	345 / 408

REP-3

AMMONIA	17.6 / 13.4
ALKALINITY	446 / 162
CHLORIDE	106 / 117
HARDNESS	166 / 161
NITRATE	3.47 / 4.04
SULFATE	33.8 / 46.1
TDS	348 / 422

PK-10I

AMMONIA	39.1 / 37.9
ALKALINITY	404 / 419
CHLORIDE	291 / 678
HARDNESS	285 / 312
NITRATE	0.39 / 0.21
SULFATE	88.9 / 110
TDS	918 / 1,020

REP-2

AMMONIA	39.3 / 41
ALKALINITY	400J / 419
CHLORIDE	287 / 499
HARDNESS	285 / 310
NITRATE	0.51 / 0.21
SULFATE	109 / 113
TDS	948 / 1,030

SY-2D

AMMONIA	4.94 / 6.98
ALKALINITY	100 / 81.6
CHLORIDE	108 / 97
HARDNESS	68.4 / 58.4
NITRATE	1.2 / 1.39
SULFATE	22.6 / 16.5
TDS	282 / 299

SY-6D

AMMONIA	0.29 / 0.27
ALKALINITY	19.8 / 9.80
CHLORIDE	77.9 / 87.4
HARDNESS	84 / 81
NITRATE	6.03 / 6.64
SULFATE	71.6 / 63
TDS	261 / 293

SY-1D

AMMONIA	11.8 / 9.9
ALKALINITY	123 / 120
CHLORIDE	285 / 287
HARDNESS	222 / 224
NITRATE	6.21 / 6.19
SULFATE	146 / 150
TDS	798 / 803

RB-11I

AMMONIA	– / –
ALKALINITY	14 / 11.6
CHLORIDE	29.7 / 27.9
HARDNESS	87.2 / 89.8
NITRATE	13.2 / 13.3
SULFATE	41.6 / –
TDS	186 / 252

REP-1

AMMONIA	– / –
ALKALINITY	13.0 / 10.8
CHLORIDE	29.4 / 28.3
HARDNESS	86.6 / 89.4
NITRATE	12.9 / 13.4
SULFATE	42.4 / 34.2
TDS	179 / 216

EXPLANATION

PK-10I	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
TDS	TOTAL DISSOLVED SOLIDS
–	NOT DETECTED
J	ESTIMATED VALUE
/	CONCENTRATIONS FOR NOVEMBER/DECEMBER SAMPLING ROUND IN MICROGRAMS PER LITER mg/L
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

GERAGHTY & MILLER, INC.
Environmental Services

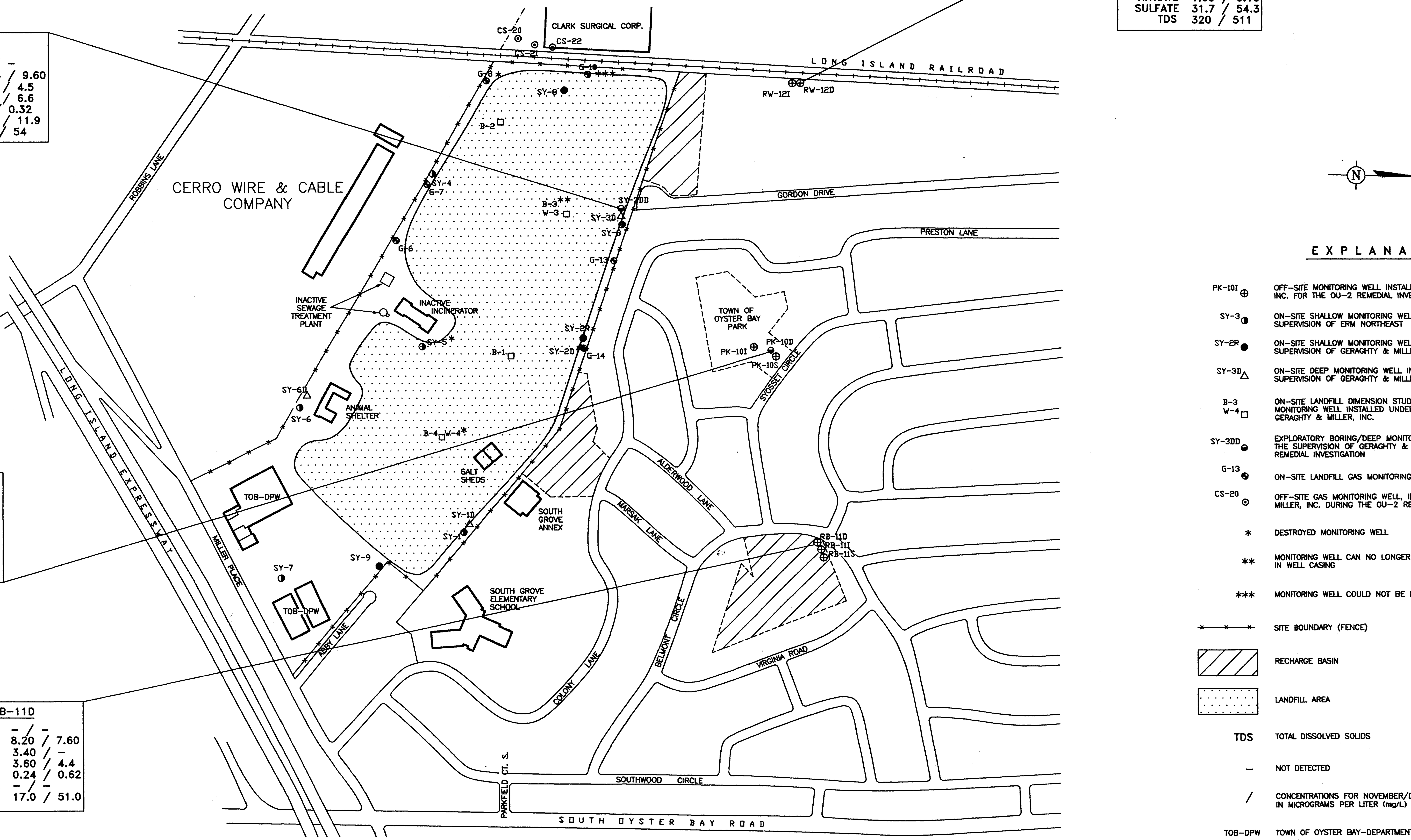
SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029008	FILE NO: 1584
DRAWING: LEACH-I	PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO	DATE: 3/10/94
CHECKED BY: L. HENDRICKS	DATE: –
APPROVED BY: V. GLASSER	DATE: –

CONCENTRATIONS OF LEACHATE INDICATOR PARAMETERS DETECTED IN SITE MONITORING WELLS SCREENED IN THE INTERMEDIATE ZONE OF THE MAGOTHY AQUIFER
SECOND OPERABLE UNIT REMEDIAL INVESTIGATION
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-14



RW-12D	
AMMONIA	– / 0.11
ALKALINITY	73.8 / 80.4
CHLORIDE	122 / 139
HARDNESS	132 / 144
NITRATE	1.09 / 0.10
SULFATE	31.7 / 54.3
TDS	320 / 511

SY-3DD	
AMMONIA	– / –
ALKALINITY	14.4 / 9.60
CHLORIDE	4.2 / 4.5
HARDNESS	7.6 / 6.6
NITRATE	– / 0.32
SULFATE	1.8 / 11.9
TDS	44 / 54

PK-10D	
AMMONIA	– / –
ALKALINITY	24.6 / 17.8
CHLORIDE	14.0 / 14.2
HARDNESS	12.2 / 12.2
NITRATE	0.90 / 0.90
SULFATE	15.6 / 11.5
TDS	87 / 85

RB-11D	
AMMONIA	– / –
ALKALINITY	8.20 / 7.60
CHLORIDE	3.40 / –
HARDNESS	3.60 / 4.4
NITRATE	0.24 / 0.62
SULFATE	– / –
TDS	17.0 / 51.0

EXPLANATION

Symbol	Description
PK-10I ⊕	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3 ◑	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R ●	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D △	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4 □	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20 ⊙	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
–x–x–	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
TDS	TOTAL DISSOLVED SOLIDS
–	NOT DETECTED
/	CONCENTRATIONS FOR NOVEMBER/DECEMBER SAMPLING ROUND IN MICROGRAMS PER LITER (mg/L)
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

GERAGHTY & MILLER, INC.
Environmental Services

SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029006	FILE NO: 1584
DRAWING: LEACH-B	PLOT SIZE: 1"=250'
DRAFTED BY: V. CARUNCHO	DATE: 3/10/94
CHECKED BY: L. HENDRICKS	DATE: –
APPROVED BY: V. GLASSER	DATE: –

CONCENTRATIONS OF LEACHATE INDICATOR PARAMETERS DETECTED IN SITE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE MAGOTHY AQUIFER
SECOND OPERABLE UNIT REMEDIAL INVESTIGATION
SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-15

SY-4

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ANTIMONY	23.1 B	38.3 B	21.0 B	–
ARSENIC	9.4 BJ	5.2 B	10.3	5.9 B
BARIUM	129 B	116 B	128 B	127 B
CHROMIUM	7.8 B	–	5.3 BJ	–
COPPER	63.7	–	61.9	–
IRON	41,200	9,810	45,900	8,910
LEAD	24.3	–	65.4 J	–
NICKEL	–	–	16.0 B	–
POTASSIUM	27,800	26,500	27,600	27,700
SODIUM	117,000	118,000	115,000	112,000
ZINC	99.9	13.1 B	147 J	37.5

SY-8

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ANTIMONY	–	–	25.5 B	–
BARIUM	68.6 B	74.4 B	65.9 BJ	82.9 B
CHROMIUM	–	–	–	4.4 B
IRON	R	2,540	2,450	2,480
LEAD	6.0 J	–	–	–
NICKEL	–	–	16.8 B	–
POTASSIUM	4,740 B	5,110	5,420	5,790
SODIUM	26, 800	29,000	29,300 J	29,100
ZINC	1,840 J	1,970 J	1,900	1,940

SY-6

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
BARIUM	59.6 B	75.0 B	91.6 B	91.6 B
CADMIUM	–	2.3 B	–	–
COPPER	16.8 B	–	38.5	–
IRON	R	399	22,200	173
LEAD	14.0 J	–	21.5 J	–
POTASSIUM	1,330 B	1,640 B	1,800 B	1,660 B
SODIUM	38,900 J	49,100 J	38,200	38,200
ZINC	347 J	235 J	611 J	183

SY-7

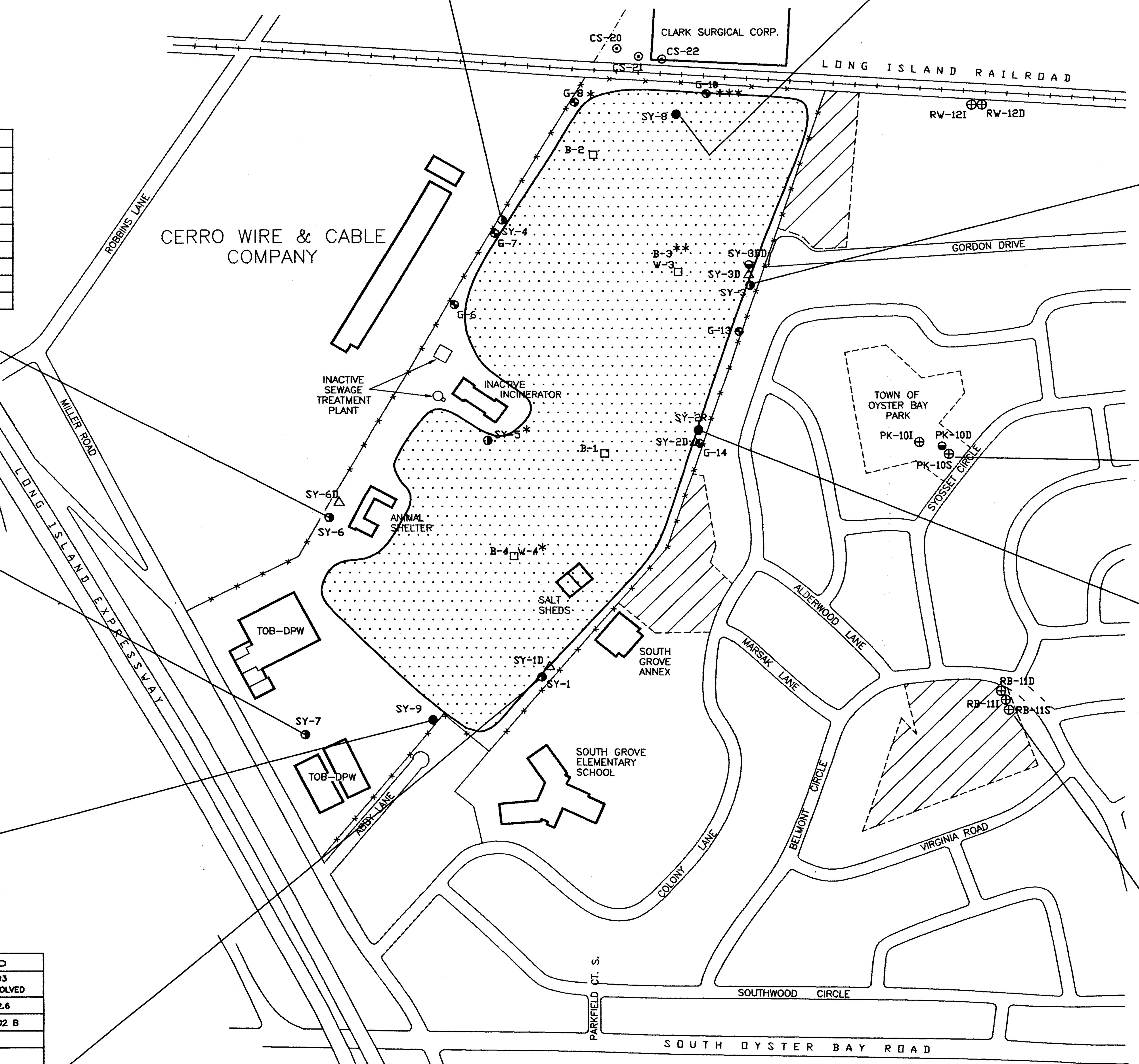
PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ANTIMONY	27.8 B	46.8 B	34.4 B	25.2 B
ARSENIC	3.4 B	1.2 B	7.0 B	1.7 B
BARIUM	171 B	146 B	179 B	179 B
BERYLLIUM	–	–	–	1.5 B
CHROMIUM	28.2	–	49.9 J	–
COPPER	86.1	9.5 B	134	–
IRON	R	77,800	181,000	71,200
LEAD	37.9 J	–	21.9 J	–
MERCURY	0.77	–	0.31	–
NICKEL	22.1 B	–	69.6	14.1 B
POTASSIUM	1,650 B	1,660 B	2,280 B	1,940 B
SODIUM	110,000	118,000	173,000	175,000
THALLIUM	–	–	–	1.8 BJ
ZINC	529 J	174 J	389 J	139

SY-9

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ARSENIC	39.3	19.4	26.7 J	19.1
BARIUM	144 B	159 B	155 BJ	82.8B
CHROMIUM	23.3 J	–	24.7	–
COPPER	R	R	160	–
IRON	27,300	6,480	24,400	5,340
LEAD	58.8	–	41.8	–
NICKEL	22.2 B	–	23.1 B	–
POTASSIUM	3,120 B	2,000 B	3,550 B	2,130 B
SODIUM	25,900 J	30,400 J	27,600 J	32,500 J
ZINC	227	81.6	219	67.9

SY-1

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ARSENIC	17.4 BJ	18.5	23.9 J	22.6
BARIUM	78.6 B	86.6 B	88.4 BJ	102 B
CHROMIUM	18.6 J	–	18.7	–
COPPER	29.0	8.9 B	9.5 B	–
IRON	80,000	20,400	79,900	23,000
LEAD	13.1	–	9.5 J	–
NICKEL	26.8 B	–	11.2 B	17.4 B
POTSSIUM	5,090	4,490 B	4,540 BJ	4,750 B
SILVER	2.8 B	–	–	–
SODIUM	20,100	20,800	3,550 B	23,600
ZINC	39.3	21.2	R	23.5



SY-3

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ANTIMONY	91.8	–	35.7 B	36.7 B
ARSENIC	41.4 J	15.0	75.1	47.4
BARIUM	237	110 B	213	186 B
CHROMIUM	31.3	–	5.5 BJ	–
COPPER	80.1	–	15.4 B	–
IRON	295,000	2,550	70,100	7,900
LEAD	62.8	–	33.0 J	–
NICKEL	24.2 B	–	–	–
POTASSIUM	70,500	68,000	73,600	66,600
SODIUM	99,100	98,400	124,000	116,000
ZINC	181	16.5 B	92.4 J	33.0

PK-10S

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ARSENIC	1.9 B	1.1 B	3.5 BJ	–
BARIUM	38.5 B	32.0 B	36.3 BJ	52.8 B
COPPER	38.8	–	8.1 B	–
IRON	R	682	5,380	694
LEAD	10.1 J	–	6.2	–
NICKEL	25.0 B	17.6 B	17.5 B	11.1 B
POTASSIUM	1,010 B	986 B	1,900 B	1,500 B
SODIUM	19,400	20,900	20,500	20,900
ZINC	178 J	155 J	43.3 J	53.8 J

SY-2R

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
ANTIMONY	36.4 B	–	24.3 B	–
BARIUM	64.2 B	88.4 B	50.3 B	49.2 B
BERYLLIUM	7.8	2.5 B	1.4 B	1.2 B
CADMIUM	–	–	–	2.0 B
CHROMIUM	16.2	–	3.7 BJ	–
COPPER	24.5 B	–	–	–
IRON	20,600	1,770	2,060	383
LEAD	128	–	11.1 J	1.7 B
NICKEL	91.1	21.8 B	16.3 B	–
POTASSIUM	18,700	18,200	19,800	18,200
SODIUM	239,000	232,000	227,000	204,000
ZINC	115	48.6	29.9 J	29.7

RB-11S

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND NOVEMBER 1993 TOTAL	NOVEMBER 1993 DISSOLVED	DECEMBER 1993 TOTAL	DECEMBER 1993 DISSOLVED
BARIUM	8.6 B	9.0 B	8.1 B	22.6 B
CADMIUM	2.8 BJ	–	–	–
CHROMIUM	–	–	8.6 B	–
COPPER	13.9 B	–	–	–
IRON	1130	175	1,270	114
LEAD	2.6 B	–	3.7	–
NICKEL	–	–	18.2 B	–
POTASSIUM	1,140 B	790 B	1,510 B	1,510 B
SODIUM	7,590	8,020	7,920	8,040
ZINC	30.4	28.2	53.1	33.1

EXPLANATION

PK-10I ⊕	OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION
SY-3	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST
SY-2R	ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3D △	ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
B-3 W-4 □	ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.
SY-3DD	EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION
G-13	ON-SITE LANDFILL GAS MONITORING WELL
CS-20 ⊙	OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION
*	DESTROYED MONITORING WELL
**	MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING
***	MONITORING WELL COULD NOT BE LOCATED
–×–×–	SITE BOUNDARY (FENCE)
	RECHARGE BASIN
	LANDFILL AREA
–	NOT DETECTED
B	ANALYTE CONCENTRATION IS BETWEEN THE INSTRUMENT DETECTION LIMIT AND CONTRACT REQUIRED LIMIT
J	ESTIMATED VALUE
R	UNUSABLE VALUE
ug/L	MICROGRAMS PER LITER
TOB-DPW	TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

0 500 FT

GERAGHTY & MILLER, INC. Environmental Services

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SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY0029.008	FILE NO: 1584
DRAWING: METAL-S	PLOT SIZE: 1"=250'
DRAFTED BY: WH CICIO	DATE: 12-1-95
CHECKED BY: D SOTTILE	DATE: 12-1-95
APPROVED BY: M WOLFERT	DATE: 12-1-95

CONCENTRATIONS OF METALS DETECTED IN SITE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION

SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-16

RW-12I

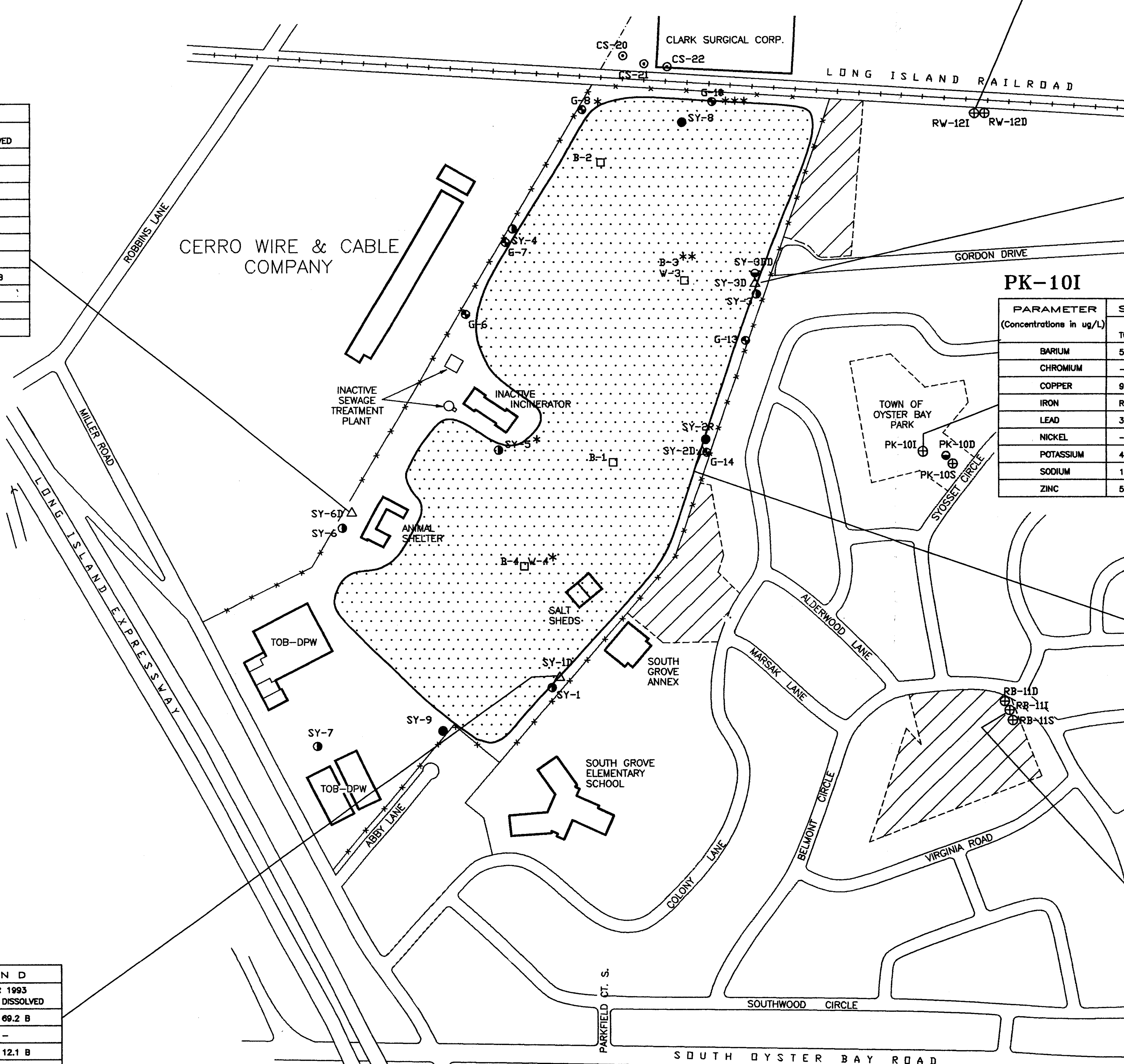
PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED	REPLICATE ROUND November 1993 TOTAL	REPLICATE ROUND November 1993 DISSOLVED	REPLICATE ROUND December 1993 TOTAL	REPLICATE ROUND December 1993 DISSOLVED
ANTIMONY	–	29.2 B	–	–	–	–	–	–
ARSENIC	–	1.4 B	1.5 B	1.8 B	–	–	1.4 B	–
BARIUM	46.9 B	39.8 B	54.0 B	47.7 B	46.9 B	40.5 B	55.1 B	48.2 B
CADMIUM	–	–	–	2.4 B	–	–	3.3 B	–
CHROMIUM	6.8 B	–	–	3.7 BJ	5.5 B	7.0 B	–	–
IRON	R	–	320	–	R	–	342	–
LEAD	4.5 J	–	2.8 BJ	–	2.3 BJ	–	3.3 J	–
POTASSIUM	8,100 J	9,690 J	10,300	9,670	8,110 J	10,100 J	10,300	10,300
SODIUM	53,500 J	59,500 J	60,800	57,800	52,100 J	60,900 J	62,000	60,300
ZINC	57.7 J	83.2 J	48.9 J	43.7	57.1 J	76.2 J	58.9 J	55.4

SY-6D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED
ARSENIC	1.2 BJ	–	–	–
BARIUM	41.8 B	52.4 B	37.7 BJ	44.6 B
CHROMIUM	23.9 J	–	–	–
COPPER	R	R	7.6 B	–
IRON	3,280	961	985	939
LEAD	7.5	–	–	–
NICKEL	12.6 B	–	14.3 B	–
POTASSIUM	2,080 B	676 B	2,030 B	2,210 B
SILVER	3.9 B	–	–	–
SODIUM	50,100	50,400	50,900	51,200
ZINC	52.4	55.3	R	20.8

SY-3D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED
ARSENIC	94.7 J	8.9 B	102	2.5 B
BARIUM	162 B	101 B	153 B	112 B
CADMIUM	–	–	–	2.4 B
CHROMIUM	7.3 BJ	–	–	–
COPPER	104	40.8	44.9	8.3 B
IRON	34,700	1,810	23,300	728
LEAD	10.7	–	8.8 J	–
NICKEL	–	17.8 B	14.9 B	–
POTASSIUM	131,000	132,000	142,000	132,000
SODIUM	194,000	198,000	211,000	196,000
ZINC	76.5	23.3	66.0 J	37.2



PK-10I

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED	REPLICATE ROUND TOTAL	REPLICATE ROUND DISSOLVED	REPLICATE ROUND TOTAL	REPLICATE ROUND DISSOLVED
BARIUM	54.8 B	52.2 B	65.4 BJ	64.8 B	60.8 B	54.8 B	65.4 BJ	67.9 B
CHROMIUM	–	–	3.7 B	–	–	–	4.6 B	–
COPPER	9.9 B	13.7 B	–	–	13.0 B	16.8 B	–	–
IRON	R	–	474	–	R	–	473	143
LEAD	3.8 J	2.6 BJ	3.2	–	3.8 J	2.8 BJ	3.3	–
NICKEL	–	–	16.4 B	15.0 B	–	12.7 B	16.8 B	–
POTASSIUM	46,100	47,300	53,400	50,400	50,600	50,800	53,500	52,400
SODIUM	176,000	179,000	235,000 J	220,000	193,000	189,000	237,000 J	229,000
ZINC	58.7 J	63.0 J	42.6	22.8	75.8 J	65.7 J	40.8	25.0

SY-2D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED
BARIUM	57.0 B	57.8 B	48.7 B	37.6 B
CADMIUM	2.8 BJ	–	–	2.4 B
CHROMIUM	–	–	6.4 BJ	–
COPPER	12.6 B	–	–	–
IRON	264	–	R	–
LEAD	–	–	1.8 BJ	–
POTASSIUM	13,200	12,600	12,600	12,600
SODIUM	70,500	66,600	65,000	62,500
ZINC	11.5 B	10.3 B	29.1 J	24.7

RB-11I

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED	REPLICATE ROUND November 1993 TOTAL	REPLICATE ROUND November 1993 DISSOLVED	REPLICATE ROUND December 1993 TOTAL	REPLICATE ROUND December 1993 DISSOLVED
BARIUM	56.2 B	39.7 B	67.2 BJ	71.7 B	58.4 B	34.9 B	66.6 BJ	69.8 B
CADMIUM	2.0 BJ	–	–	–	3.7 BJ	–	–	–
CHROMIUM	15.5	–	–	–	14.0	–	–	–
COPPER	15.1 B	–	–	–	12.6 B	–	–	–
IRON	959	104	881	–	792	112	759	–
LEAD	4.9	3.2	4.2	–	4.4	3.3	4.2	–
NICKEL	–	–	21.8 B	12.1 B	14.6 B	–	14.6 B	13.9 B
POTASSIUM	1,320 B	1,080 B	1,620 B	1,710 B	1,260 B	1,480 B	1,560 B	1,980 B
SODIUM	17,400	18,600	18,500	18,800	18,200	17,600	18,700	18,300
ZINC	66.9	62.8	48.6	44.3	66.1	68.3	41.2 J	45.6 J

SY-1D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND November 1993 TOTAL	SAMPLING ROUND November 1993 DISSOLVED	SAMPLING ROUND December 1993 TOTAL	SAMPLING ROUND December 1993 DISSOLVED
BARIUM	57.0 B	56.6 B	62.2 BJ	69.2 B
IRON	152	–	–	–
NICKEL	–	–	–	12.1 B
POTSSIUM	10,600	10,600	10,700	11,000
SODIUM	180,000	179,000	192,000 J	190,000
ZINC	11.9 B	11.6 B	14.8 B	29.2

EXPLANATION

PK-10I — OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION

SY-3 — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST

SY-2R — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

SY-3D — ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

B-3, W-4 — ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

SY-3DD — EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION

G-13 — ON-SITE LANDFILL GAS MONITORING WELL

CS-20 — OFF-SITE GAS MONITORING WELL, INSTALLED BY GERAGHTY & MILLER, INC. DURING THE OU-2 REMEDIAL INVESTIGATION

* — DESTROYED MONITORING WELL

** — MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING

*** — MONITORING WELL COULD NOT BE LOCATED

SITE BOUNDARY (FENCE)

RECHARGE BASIN

LANDFILL AREA

– NOT DETECTED

B — ANALYTE CONCENTRATION IS BETWEEN THE INSTRUMENT DETECTION LIMIT AND CONTRACT REQUIRED LIMIT

J — ESTIMATED VALUE

R — UNUSABLE VALUE

ug/L — MICROGRAMS PER LITER

TOB-DPW — TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

0 — 500 FT

GERAGHTY & MILLER, INC.
Environmental Services

SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

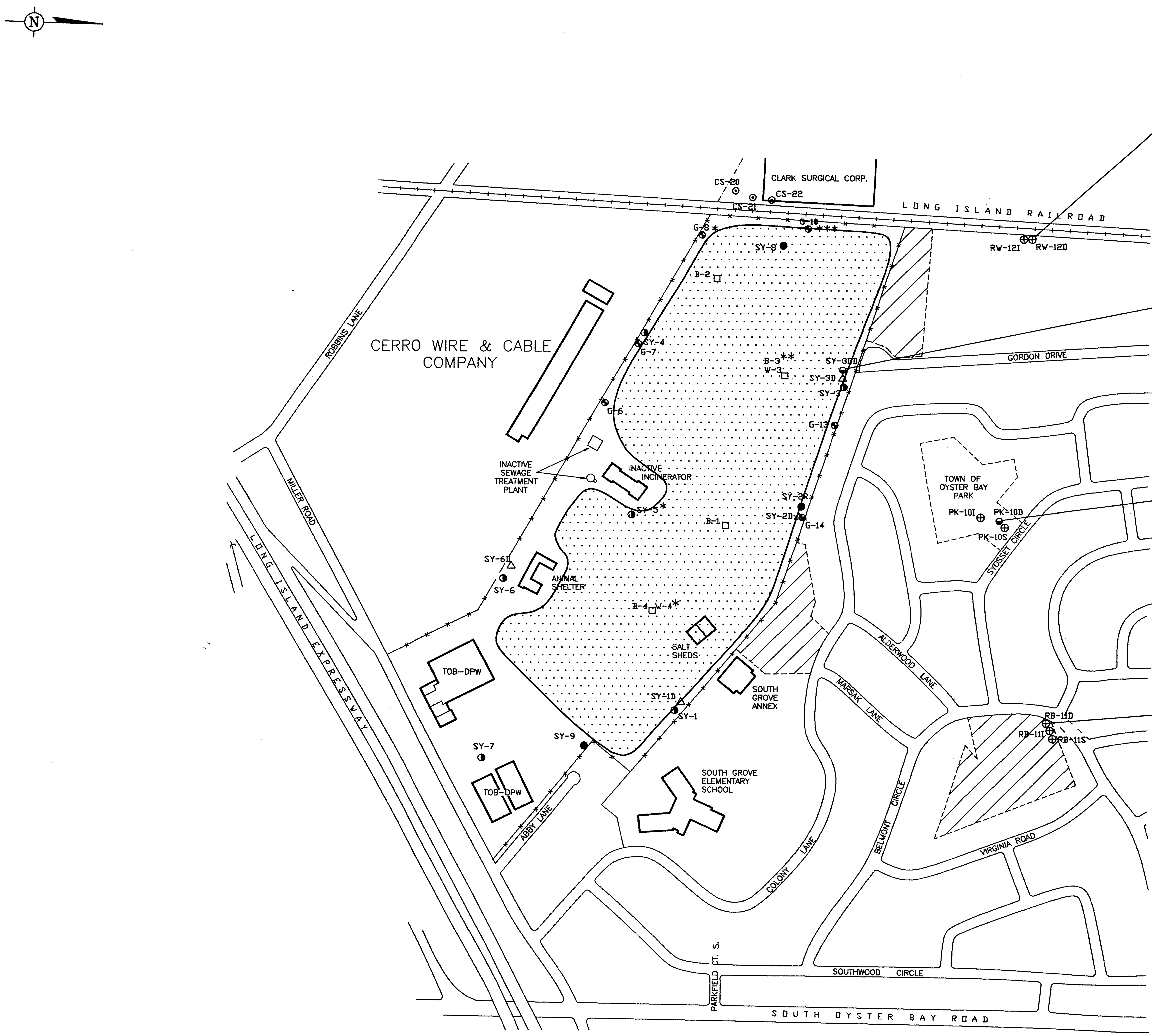
REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY0029.008	FILE NO: 1584
DRAWING: METAL-I	PLOT SIZE: 1"=250'
DRAFTED BY: WH CICIO	DATE: 12-1-95
CHECKED BY: D SOTTILE	DATE: 12-1-95
APPROVED BY: M WOLFERT	DATE: 12-1-95

CONCENTRATIONS OF METALS DETECTED IN SITE MONITORING WELLS SCREENED IN THE INTERMEDIATE ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION

SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-17



RW-12D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND			
	NOVEMBER 1993		DECEMBER 1993	
	TOTAL	DISSOLVED	TOTAL	DISSOLVED
BARIUM	46.9 B	18.3 B	75.2 B	49.8 B
CADMIUM	–	–	2.4 B	–
CHROMIUM	11.9	3.1 B	–	3.0 BJ
COPPER	–	–	7.0 B	–
IRON	R	–	552	–
LEAD	7.1 J	2.7 BJ	7.1 J	–
POTASSIUM	1,880 B	2,040 B	1,850 B	1,850 B
SELENIUM	8.4 BJ	5.4	5.4	5.7
SODIUM	55,700	55,000	66,500	65,000
ZINC	77.4 J	95.6 J	85.6 J	78.4

SY-3DD

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND			
	NOVEMBER 1993		DECEMBER 1993	
	TOTAL	DISSOLVED	TOTAL	DISSOLVED
ANTIMONY	25.0 B	–	–	–
BARIUM	–	–	2.5 B	11.3 B
CHROMIUM	–	–	9.4 B	–
COPPER	R	R	20.1 B	–
IRON	1,030	–	564	–
LEAD	7.5	–	2.7 B	–
NICKEL	14.6 B	–	34.2 B	16.4 B
POTASSIUM	869 B	–	823 B	1,030 B
SILVER	2.3 B	–	–	–
SODIUM	7,530	5,780	4,760 B	4,730 B
ZINC	160	72.9	R	52.4

PK-10D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND			
	NOVEMBER 1993		DECEMBER 1993	
	TOTAL	DISSOLVED	TOTAL	DISSOLVED
ARSENIC	9.7 B	9.8 B	6.3 B	7.0 B
BARIUM	3.0 B	2.0 B	4.2 B	10.6 B
CADMIUM	–	–	2.0 B	–
CHROMIUM	9.4 B	3.9 B	3.5 BJ	3.5 BJ
IRON	R	112	179	–
LEAD	3.4 J	–	1.7 BJ	–
POTASSIUM	–	586 B	853 B	974 B
SELENIUM	–	–	–	2.2 B
SODIUM	22,900	24,600	15,900	16,600
ZINC	64.8 J	51.3 J	53.6 J	42.1

RB-11D

PARAMETER (Concentrations in ug/L)	SAMPLING ROUND			
	NOVEMBER 1993		DECEMBER 1993	
	TOTAL	DISSOLVED	TOTAL	DISSOLVED
BARIUM	9.4 B	7.2 B	6.9 B	24.5 B
CHROMIUM	–	–	9.8 B	–
COPPER	13.9 B	–	–	–
IRON	975	–	958	–
LEAD	4.6	–	3.0	–
NICKEL	–	–	17.8 B	12.8 B
POTASSIUM	–	–	787 B	1,210 B
SODIUM	4,260 B	4,520 B	4,220 B	4,810 B
ZINC	41.2	37.2	R	R

EXPLANATION

PK-10I — OFF-SITE MONITORING WELL INSTALLED BY GERAGHTY & MILLER INC. FOR THE OU-2 REMEDIAL INVESTIGATION

SY-3 — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF ERM NORTHEAST

SY-2R — ON-SITE SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

SY-3D — ON-SITE DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

B-3 / W-4 — ON-SITE LANDFILL DIMENSION STUDY SOIL BORING/SHALLOW MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC.

SY-3DD — EXPLORATORY BORING/DEEP MONITORING WELL INSTALLED UNDER THE SUPERVISION OF GERAGHTY & MILLER, INC. FOR THE OU-2 REMEDIAL INVESTIGATION

G-13 — ON-SITE LANDFILL GAS MONITORING WELL

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* — DESTROYED MONITORING WELL

** — MONITORING WELL CAN NO LONGER BE SAMPLED DUE TO BEND IN WELL CASING

*** — MONITORING WELL COULD NOT BE LOCATED

SITE BOUNDARY (FENCE)

RECHARGE BASIN

LANDFILL AREA

– NOT DETECTED

B — ANALYTE CONCENTRATION IS BETWEEN THE INSTRUMENT DETECTION LIMIT AND CONTRACT REQUIRED LIMIT

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ug/L — MICROGRAMS PER LITER

TOB-DPW — TOWN OF OYSTER BAY-DEPARTMENT OF PUBLIC WORKS

0 500 FT

GERAGHTY & MILLER, INC.
Environmental Services

SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY029008	FILE NO: 1584
DRAWING: METAL-D	PLOT SIZE: 1"=250'
DRAFTED BY: WH CICIO	DATE: 12-1-95
CHECKED BY: D SOTTILE	DATE: 12-1-95
APPROVED BY: M WOLFERT	DATE: 12-1-95

CONCENTRATIONS OF METALS DETECTED IN SITE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE MAGOTHY AQUIFER SECOND OPERABLE UNIT REMEDIAL INVESTIGATION

SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 3-18

APPENDIX A

JANUARY 20, 1993 LETTER TO
LOCKWOOD, KESSLER & BARTLETT, INC.
REGARDING PROPOSED SCREEN SETTINGS

GERAGHTY
& MILLER, INC.
Environmental Services

Ground Water *Hydrocarbon* *Remediation* *Education*

January 20, 1993

John P. Lekstutis, P.E.
Lockwood, Kessler & Bartlett
1 Aerial Way
Syosset, New York 11797

Subject: Syosset Landfill - Second Operable Unit Remedial Investigation

Dear Mr. Lekstutis:

Geraghty & Miller, Inc., is writing to propose screen settings for the remaining nine ground-water monitoring wells that will be installed for the subject investigation. The screen settings proposed in this letter were selected in accordance with the Work Plan for this investigation. As you know, the two exploratory borings (SY-3DD [on-site] and PK-10D [off-site]) were recently completed. Ground-water samples were collected at 20 foot intervals from both well borings and were analyzed for leachate indicator parameters (see attached tables). These data were used in conjunction with the lithologic profiles (from geophysical logging [natural gamma] and formation samples) to determine the respective screen settings for the wells that were installed in these two borings. The screen for Well SY-3DD was set at 530 to 540 feet below land surface and the screen for Well PK-10D was set at 489 to 499 feet below land surface. Based on the geologic logs and geophysical logs from both well borings, there are four low-permeability layers that were encountered at both boring locations which we interpret as being continuous. Assuming that the land surface elevations at both well locations are the same, which the topographic map indicates, the lithologic layers slope upward in a northerly direction. This is consistent with the regional hydrogeologic setting in which the bedrock surface and the overlying unconsolidated geologic units slope upward in a northerly direction. It is our opinion that this hydrogeologic setting explains why the bottom of the plume is situated at a higher elevation off-site than on-site even though there is a strong downward vertical hydraulic gradient.

Because of this situation, we recommend that the screens for the deep wells at the other two off-site locations be set at the same depth as off-site Well PK-10D (approximately 490 to 500 feet below land surface). The intermediate depth wells (off-site) should be set at a depth of about 360 feet because it was at this depth that the highest concentrations of leachate parameters were detected in Well Boring PK-10D. Because the highest concentrations of leachate parameters in the on-site Well Boring SY-3DD were detected at 218 feet below land surface, Geraghty & Miller recommends that existing Well SY-6D, which

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is screened at a similar depth (195 to 205 feet below land surface), serve as the deep upgradient monitoring well. In this way, upgradient and downgradient water-quality data can be optimally compared. As described in the Work Plan, the shallow wells should be set at a depth of about 150 feet because this is the depth between the first sampling depth where ground water was defined as leachate in Well Boring PK-10D (160 feet) and the sampling depth just above that definition.

The drilling of the intermediate-depth well boring at the Town Park (PK-10I) is scheduled to begin next week. The final screen settings for the remaining eight wells should be determined in consultation with the United States Environmental Protection Agency (USEPA) based on the lithologic profiles from the deep wells at each drilling site. Geraghty & Miller recommends that we meet with the USEPA to discuss the screen settings proposed in this letter and to review the overall project objectives given the new information developed.

Please call us if you have any questions.

Sincerely,

GERAGHTY & MILLER, INC.

Vincent J. Glasser

Vincent J. Glasser
Senior Scientist/Project Manager

Michael F. Wolfert

Michael F. Wolfert
Vice President/Project Director

cc: R.W. Lenz, P.E.

VJG/MFW:bjm
NY029-04lets120.let

Table 1. Summary of Field Measurements of Leachate Parameters of Ground-Water Samples Collected During Drilling of Exploratory Boring PK-10, Syosset Landfill, Syosset, New York.

		Primary Leachate Parameters			Secondary Leachate Parameters			
Sample Depth (feet)	Date Sampled Action Level (a)	Alkalinity mg/L 11	Total Hardness mg/L 43	Ammonia mg/L 0.12	Conductivity (umhos/cm) 217	pH 5.75	Chloride mg/L 19	Temperature (Celcius) 14.5
PK-10D								
120	12/15/92	(b)	(b)	(b)	(b)	(b)	(b)	(b)
140	12/15/92	5.5	59	<0.06	240	7.45	14	15
160	12/15/92	13	59	<0.06	240	7.25	17	15
180	12/15/92	37	39	<0.06	180	7.15	14	15
200	12/15/92	39	92	<0.06	340	5.25	18	15
220	12/15/92	(b)	(b)	(b)	(b)	(b)	(b)	(b)
240	12/15/92	44	78	<0.06	400	5.45	42	15
260	12/16/92	(c)	(c)	(c)	(c)	(c)	(c)	15
280	12/16/92	37	93	0.17	500	7.55	47	15
280(e)	12/16/92	33.7	92.2	0.65	NA	NA	46.8	NA
300	12/16/92	18	63	0.08	300	7.10	26	15
300 (d)	12/16/92	16	58	0.07	290	7.15	23	15
300(e)	12/16/92	15	58.6	0.10	NA	NA	23.3	NA
320	12/16/92	66	47	6.2	750	7.65	68	15
340	12/16/92	250	220	19	1,670	7.45	(e)	15
360	12/17/92	370	310	24	2,000	7.55	360	15
380	12/18/92	220	278	19	2,100	7.90	439	15
400	12/18/92	150	210	9.9	1,600	7.70	350	15
420	12/21/92	46	120	8.6	720	7.15	140	15
440	12/21/92	6.6	75	<0.06	400	6.25	76	15

Table 1. Summary of Field Measurements of Leachate Parameters of Ground-Water Samples Collected During Drilling of Exploratory Boring PK-10, Syosset Landfill, Syosset, New York.

Sample Depth (feet)	Date Sampled Action Level (a)	Alkalinity mg/L 11	Total Hardness mg/L 43	Ammonia mg/L 0.12	Conductivity (umhos/cm) 217	pH 5.75	Chloride mg/L 19	Temperature (Celcius) 14.5
		Primary Leachate Parameters			Secondary Leachate Parameters			
PK-10D								
460	12/22/92	6.8	160	0.08	920	7.10	160	15
479	12/28/92	6.1	7.6	0.07	50.6	6.80	11.2	15
479(e)	12/28/92	<1.0	62.2	0.09	NA	NA	7.53	NA
499	12/28/92	9.1	16	0.07	74	7.0	13	15
499(e)	12/28/92	9.9	12.8	0.51	NA	NA	14.5	NA
Hydrant Water	12/17/92	31	13	<0.06	160	8.20	8.7	15

(a) Based on statistical analysis of background water-quality data.
(b) Sample could not be collected due to the presence of a dry clay layer at the sampling depth.
(c) Sample was collected but almost all of it was particulate matter (clay partcles).
(d) Field Replicate.
(e) Replicate sample analyzed by IEA, Inc., Monroe, Connecticut.
(f) Not enough sample collected for analyses.

mg/L Milligrams per liter.
umhos/cm Micromhos per centimeter.

Table 3. Summary of Field Measurements of Leachate Parameters of Ground-Water Samples Collected During Drilling of Exploratory Boring SY-3DD, Syosset Landfill, Syosset, New York.

		Primary Leachate Parameters			Secondary Leachate Parameters			
Sample Depth (feet)	Date Sampled Action Level (a)	Alkalinity mg/L 11	Total Hardness mg/L 43	Ammonia mg/L 0.12	Conductivity (umhos/cm) 217	pH 5.75	Chloride mg/L 19	Temperature (Celcius) 14.5
Well SY-3DD								
118	11/5/92	(c)	39	23	280	5.05	28	15
137	11/5/92	190	140	21	640	6.35	36	15
158	11/6/92	390	170	71	960	6.35	54	15
179	11/6/92	840	380	160	1,600	6.95	120	15
192	11/6/92	630	280	120	1,200	7.35	26	15
218	11/6/92	910	300	420	2,000	7.85	22	15
239	11/9/92	890	400	150	2,400	7.35	100	15
256	11/9/92	540	330	200	1,900	7.05	180	15
279	11/9/92	440	310	180	1,900	7.10	240	15
299	11/9/92	500	280	160	1,700	6.10	270	15
318	11/10/92	430	270	220	2,300	6.55	490	15
335	11/17/92	360	200	(b)	2,200	7.87	390	15
355	11/17/92	31	220	(b)	1,200	7.90	190	15
355 (d)	11/17/92	31.7	211	11.4	NA	NA	200	NA
375	11/17/92	38	(c)	(b)	1,600	4.80	(c)	15
375 (d)	11/17/92	41.6	231	19.1	NA	NA	271	NA
395	11/17/92	70	210	(b)	1,200	7.20	230	15
395 (d)	11/17/92	76.4	174	21.0	NA	NA	222	NA

See page 2 for footnotes.

Table 3. Summary of Field Measurements of Leachate Parameters of Ground-Water Samples Collected During Drilling of Exploratory Boring SY-3DD, Syosset Landfill, Syosset, New York.

Sample Depth (feet)	Date Sampled	Alkalinity mg/L	Total Hardness mg/L	Ammonia mg/L	Conductivity (umhos/cm)	pH	Chloride mg/L	Temperature (Celcius)
		Primary Leachate Parameters			Secondary Leachate Parameters			
	Action Level (a)	11	43	0.12	217	5.75	19	14.5
Well SY-3DD (Cont.)								
417	11/18/92	48	250	5.0	1,500	7.80	270	15
437	11/18/92	52	240	4.0	1,200	7.70	220	15
457	11/18/92	80	240	2.4	1,100	7.70	180	15
480	11/25/92	66	180	2.6	920	7.70	150	15
500	11/30/92	15	23	0.41	56	7.40	15	15
520	12/1/92	9.7	9.0	0.29	58	7.20	4.9	15
520 (e)	12/1/92	12	6.9	<0.05	NA	NA	6	NA
520**	12/1/92	10	8.1	0.16	57	7.20	4.8	15
540	12/1/92	13	12	<0.06	52	6.80	5.2	15
Hydrant Water	11/6/92	39	47	30	200	4.90	16	15
Hydrant Water	12/1/92	45	33	0.14	180	8.70	15	15

mg/L Milligrams per liter.
umhos/cm Micromhos per centimeter.
(a) Based on statistical analysis of background water-quality data.
(b) Probe malfunction.
(c) Not enough sample collected for all analyses.
(d) Replicate sample analyzed by IEA, Inc., Monroe, Connecticut.
(e) Replicate sample analyzed by EcoTest Laboratories, Inc., North Babylon, New York.
** Field replicate.
NA Not analyzed.

APPENDIX B

MARCH 11, 1993 LETTER TO
LOCKWOOD, KESSLER & BARTLETT, INC.
REGARDING COLLAPSE OF WELL BORING PK-10I

GERAGHTY
& MILLER, INC.
Environmental Services

Ground Water *Hydrocarbon* *Remediation* *Education*

March 11, 1993

VIA TELECOPIER

John P. Lekstutis, P.E.
Lockwood, Kessler, & Bartlett, Inc.
1 Aerial Way
Syosset, New York 11791

Subject: Second Operable Unit Remedial Investigation, Syosset Landfill, Syosset, New York

Dear John:

Geraghty & Miller, Inc. has prepared this letter to provide Lockwood, Kessler, & Bartlett, Inc. (LKB) with recommendations to resolve problems encountered during the drilling of Well Boring PK-10I. As you are aware, the rapid loss of circulation of drilling mud at the 328-foot depth on Friday, February 26, 1992, led to the collapse of Well Boring PK-10I up to several feet below the bottom of the 10-inch diameter surface casing (approximately 138 feet below land surface). This loss of drilling mud is probably due to loose, unstable formation material created during the drilling of Well PK-10D, which is located about 12 feet away from Well Boring PK-10I. The formation instability was likely caused by the removal of sand heave inside the drill casings during drilling of PK-10D which resulted in more material being removed from the boring than the collective volume of the casings installed. This condition precludes completion of the intermediate depth well (PK-10I) at this location.

In order to expedite continuation and completion of the well installation program, Geraghty & Miller recommends that the shallow well, PK-10S, be installed in the collapsed PK-10I well boring. This shallow well will only have to be drilled an additional 12 feet below the existing (open) 10-inch diameter steel casing which is set at a depth of 138 feet. PK-10S is proposed to be installed in the following manner: the 4-inch diameter well should be set in a 6-inch diameter steel casing, which will be lowered inside the 10-inch diameter surface casing and driven to the completion depth (150 feet) using a cable tool rig. The well will be gravel-packed by adding the gravel in the annulus between the well casing and 6-inch diameter casing as the 6-inch diameter casing is pulled back. The gravel pack will extend to land surface inside the 10-inch diameter casing to allow for potential settling. To prevent the well from settling in the boring with the gravel pack, it will be centered and secured to the 10-inch diameter casing at land surface. A large well seal will be fabricated by Delta Well & Pump Company, Inc. (Delta) which will be slightly recessed inside the 10-inch diameter surface casing. A 2-inch diameter pipe nipple with a screw-on cap will be set in the well seal to allow for measuring the depth to the gravel pack and for adding additional gravel, as needed. After the gravel level has stabilized, a permanent bentonite seal will be emplaced above the gravel pack and extending to land surface. The well head will be completed by welding a flush mount. bolt-down manhole cover directly to the 10-inch diameter surface casing.

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Delta proposes drilling a replacement PK-10I well boring at a new location about 100 feet south of the original location. Geraghty & Miller believes that the disturbed formation from the drilling of PK-10D is unlikely to be encountered at this distance, however, this cannot be known with certainty until this new boring is actually drilled. This well boring and well will be drilled and installed according to the Site Operations Plan (SOP) except for the surface casing. Delta's subcontractor, Catoh, Inc., who installed the two exploratory borings and the surface casings for the planned modified mud rotary borings, is no longer at the site (they demobilized in December 1992). Delta has therefore proposed installing the 10-inch diameter surface casing for Well PK-10I using a combination of the hollow-stem auger (auger) and cable tool drilling methods. The auger rig will use large diameter (12-inch inside diameter) auger flytes to drill to the maximum depth possible (approximately 50 to 60 feet), and the cable tool rig will be used to install the 10-inch diameter casing inside the augers and drive this casing to about 130 feet below land surface. Geraghty & Miller finds this method to be acceptable and recommends its use. The installation of the surface casing is expected to take about 3 or 4 days. The well boring will then be completed in the prescribed manner using the modified mud-rotary drilling method.

As part of their effort to expedite the drilling program, Delta plans on subcontracting another firm (United Well and Pump Corporation, Bohemia, New York) to do the cable tool work. The driller from this firm has not completed the 40-hour Occupational Safety and Health Administration (OSHA) training course, however, because the work will be undertaken in uncontaminated soil, Geraghty & Miller believes that the requirement for this training is not applicable to this specific activity. As such, Geraghty & Miller recommends that the U.S. Environmental Protection Agency (USEPA) be asked to waive the OSHA training requirements for this activity.

Please call us if you have any questions.

Sincerely,

GERAGHTY & MILLER, INC.

Vincent J. Glasser

Vincent J. Glasser
Senior Scientist/Project Manager

Michael F. Wolfert

Michael F. Wolfert
Vice President/Project Director

cc: R.W. Lenz, P.E.

VJG/MFW:bjm

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APPENDIX C

SAMPLE/CORE LOGS

GERAGHTY & MILLER, INC.

SAMPLE/CORE LOG

BORING/WELL: SY3DD   PROJECT NO: NY02908   PAGE: 1 of 5

SITE LOCATION: Syosset Landfill - near Gordon Drive   DRILLING STARTED: 11/03/92   DRILLING COMPLETED: 12/01/92

TOTAL DEPTH DRILLED: 540   HOLE DIAMETER: 16/10/8/6 in.   TYPE OF SAMPLE/ CORING DEVICE: Cyclone

LENGTH & DIAMETER OF CORING DEVICE: --   SAMPLING INTERVAL: Continuous out of Cyclone

LAND-SURFACE ELEVATION: { } SURVEYED { } ESTIMATED   DATUM:

DRILLING FLUID USED: Water   DRILLING METHOD: Barber (air rotary)

DRILLING CONTRACTOR: Catoh   DRILLER: J. McAdden   HELPER: M. Jackowski

PREPARED BY: Sarah Zagaja   HAMMER WEIGHT: --   HAMMER DROP: --

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
FROM	TO			
0	3	--	--	Top soil.
3	8			Sand, medium to coarse, and gravel, fine, some medium, brown, dry.
8	14			Sand, medium, some coarse, trace gravel, fine, brown, dry.
[illegible]	18			Sand, medium, some coarse, and gravel, fine, some coarse, brown, dry.
18	28			Sand, medium to coarse, some gravel, fine, trace medium, brown, dry.
28	34			Sand, medium to coarse, some gravel, fine, trace medium, brown, dry.
34	37			Sand, medium, some coarse, trace gravel, fine, brown, dry.
37	42			Sand, medium, some coarse, trace gravel, fine, brown, dry.
42	49			Sand, medium, some fine, some coarse, trace gravel, fine, brown, dry.
49	57			Sand, medium, trace fine, some coarse, some gravel, fine, brown, dry.
57	68			Sand, medium, some fine, trace coarse, brown, dry.
68	74			Sand, medium, some fine, trace coarse, trace gravel, fine, brown, dry.

SAMPLE/CORE LOG (Cont.d)

BORING/WELL: SY3DD PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
74	77	--	--	Sand, medium, some fine, some coarse, some gravel, fine, brown, dry.
77	85			Sand, medium to coarse, trace fine, trace gravel, fine, brown, dry.
85	97			Sand, medium to coarse, and gravel, fine to medium, brown, dry.
97	110			Gravel, fine to medium, some coarse, and sand, medium to coarse, brown.
110	114			Sand, medium to coarse, trace fine, some gravel, fine to medium, brown.
114	117			Sand, fine to medium, some coarse, trace fine gravel, light brown/grey.
118	125			Sand, fine to medium, some coarse, trace fine gravel, light brown/grey.
125	137			Sand, fine, micaceous, some silt, some clay, grey.
137	147			Sand, fine, some medium, trace clay, micaceous, grey.
147	158			Sand, fine to medium, trace clay, brown.
158	170			Sand, fine to medium, trace clay, brown.
170	179			Sand, fine to medium, trace clay, brown.
179	188			Sand, fine, some medium, micaceous, orange/ brown.
188	197			Sand, fine, trace medium, trace silt, micaceous, trace clay, orange/brown, some iron pyrite concretions are present.
197	212			Sand, fine, trace medium, some silt, trace clay, micaceous, orange/brown.
212	218			Sand, fine to medium, trace silt, micaceous, orange/brown.
218	232			Sand, fine to medium, trace silt, micaceous, orange/brown, some iron concretions.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: SY3DD PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
232	239	--	--	Sand, fine, trace medium, trace silt, some clay,
				micaceous. Sand is orange/brown. Clay is light
				grey. Probably in stringers.
239	256			Sand, fine, trace medium, trace silt, trace clay,
239	256			some iron concentrations, orange/brown.
256	261			Sand, fine, trace medium, some silt, trace clay,
				some iron concentrations, orange/brown.
261	278			Sand, fine, trace silt, some clay-in lenses, sand is
				brown/orange, clay and silt are brown/grey. There
				was a substantial clay layer at approximately
				261 feet.
278	282			Sand, fine, some silt, trace clay, brown/grey.
282	283			Clay, grey, trace silt.
283	299			Sand, fine, some silt, some clay, in lenses, grey,
				micaceous.
299	316			Sand, fine, some medium, and silt, some clay, brown/
				grey.
316	318			Sand, fine to medium, greyish brown, with iron
				concretions.
318	325			Sand, fine to medium, greyish brown, with iron
				concretions.
325	332			Sand, fine, some silt, grey.
332	335			Sand, fine, and silt, brownish/grey
335	344			Sand, fine, and silt, light grey.
344	348			Sand, fine, some silt, brownish grey, some iron
				concretions.
348	355			Sand, fine, some silt, trace clay, brownish grey.
355	365			Sand, fine, some silt, some clay, brownish grey,
				micaceous.
365	375			Sand, fine, some medium, some silt, trace clay, light
				grey, micaceous.
375	380			Sand, fine, some medium, some silt, trace clay, light
				grey, micaceous.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: SY3DD PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
380	385	--	--	Sand, fine, some medium, some silt, trace clay, light grey, micaceous, orange.
385	395			Sand, fine to medium, trace coarse, trace silt, trace clay, with iron concretions, orange/red, micaceous.
395	410			Sand, fine to medium, trace coarce, trace silt, trace clay, orange/red, micaceous, iron concretions.
410	417			Sand, fine, trace medium, some silt, orangeish brown, micaceous.
417	427			Sand, fine, trace medium, some silt, orangeish brown, micaceous.
427	430			Sand, fine, some medium, trace silt, micaceous, orangeish brown, with iron concretions.
430	437			Sand, fine, some medium, some silt, trace clay, brown, getting greyer with depth, micaceous, some iron concretions.
437	457			Sand, fine, trace medium, some silt, trace clay, grey-grading into brown with depth, micaceous.
457	462			Sand, fine, trace medium, trace coarse, some silt, brown, micaceous.
462	470			Sand, fine, trace medium, trace silt, light brown, micaceous.
470	480			Sand, fine, some medium, trace silt, light brown, micaceous.
480	485			Sand, fine, some medium, trace silt, dark grey with iron concretions.
485	488			Sand, fine, some medium, trace silt, light grey with iron concretions.
488	493			Clay and sand, fine, some silt, clay is in competent laminations, light grey.
493	500			Sand, fine, some silt, some clay in laminations, light grey to brown, some iron concretions.
500	503			Sand, fine, some silt, some clay in laminations, light grey to brown, some iron concretions.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: SY3DD PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
503	509	--	--	Sand, fine, some silt, light brown.
509	510			Clay, light grey to brown, some sand, fine.
510	513			Sand, medium to coarse, some fine, trace fine gravel,
				light brown, micaceous, quartz rich.
513	520			Sand, fine to medium, trace coarse, trace silt, light
				brown, quartz rich.
520	530			Sand, medium to coarse, some fine, trace fine gravel,
				light brown, micaceous, quartz rich.
530	540			Sand, medium to coarse, some fine, trace fine gravel,
				light brown to grey.

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SAMPLE/CORE LOG

BORING/WELL: PK-10D PROJECT NO: Syosset Landfill NY02908 PAGE: 1 of 5

SITE LOCATION: Park on Syosset Circle DRILLING STARTED: 10/28/92 DRILLING COMPLETED: 12/30/92

TOTAL DEPTH DRILLED: 500 ft. HOLE DIAMETER: 16/10/8 in. TYPE OF SAMPLE/ CORING DEVICE: Cyclone

LENGTH & DIAMETER OF CORING DEVICE: -- SAMPLING INTERVAL: Continuous out of Cyclone

LAND-SURFACE ELEVATION: { } SURVEYED { } ESTIMATED DATUM:

DRILLING FLUID USED: Water DRILLING METHOD: Barber (air rotary)

DRILLING CONTRACTOR: Catoh DRILLER: J. McAdden HELPER: M. Jackowski

PREPARED BY: Sarah Zagaja HAMMER WEIGHT: -- HAMMER DROP: --

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
0	5	--	--	Top soil, sand and gravel, brown.
5	10			Sand, medium to coarse, some gravel, fine to medium,
				trace coarse, light brown, dry.
10	16			Gravel, fine to coarse, and sand, medium to coarse,
				light brown, dry.
16	26			Sand, medium to coarse, trace gravel, fine, light
				brown, dry.
26	37			Sand, medium to coarse, some gravel, fine to medium,
				light brown, dry.
37	44			Sand, medium to coarse, some gravel, fine to medium,
				light brown, dry.
44	54			Sand, medium to coarse, trace gravel, fine to medium,
				light brown, dry.
54	58			Sand, medium to coarse, and gravel, fine to medium,
				some coarse, light brown, dry.
58	68			Sand, medium to coarse, and gravel, fine to medium,
				some coarse, light brown, dry.
68	76			Sand, medium to coarse, some gravel, fine to medium,
				trace coarse, light brown, dry.
76	96			Sand, medium to coarse, some fine gravel, trace
				medium, light brown, dry.
96	105			Sand, medium to coarse, and gravel, fine, some medium,
				brown, dry.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: PK-10 PREPARED BY: S. Zagaja PAGE: 2 of 5

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
105	114	--	--	Sand, coarse, some medium, and gravel, fine to medium, brown, dry.
114	117			Gravel, fine to medium, some coarse, trace fine cobbles, some sand, medium to coarse, brown, dry.
117	119			Sand, fine to medium, some silt, trace clay, brown/ grey, moist.
119	133			Clay and sand, fine, some silt, slightly moist, light grey.
133	137.5			Sand, fine, some clay, some silt, some fine gravel, slightly moist, light grey.
137.5	140			Sand, fine, and clay, some silt, clay layers are light grey, sand and silt is light brown. Clay is micaceous.
140	146			Sand, fine to medium, some silt, trace clay, trace gravel, light brown to rusty brown.
146	152			Sand, fine to medium, some silt, trace gravel, fine to medium brown.
152	160			Sand, fine to medium, micaceous, brown.
160	165			Sand, fine to medium, micaceous, brown.
165	172			Sand, fine to medium, some silt, brown, micaceous.
172	175			Sand, fine to medium, some silt, brown, micaceous.
175	180			Sand, fine, some medium, trace silt, brown, micaceous.
180	190			Sand, fine, some medium, trace silt, brown, micaceous, with some iron concretions.
190	197			Sand, fine to medium, trace silt, brown, micaceous, with iron concretions.
197	200			Sand, fine, trace medium, some silt, some clay-in layers, light brown to light grey, micaceous, iron concretions.
200	206			Sand, fine, trace medium, some silt, some clay, sand is light brown, clay is grey, iron concretions abundent.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: PK-10 PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
206	211	--	--	Sand, fine, some silt, trace clay, with concretions.
211	220			Clay, some silt, trace fine sand, sand and silt is light brown, clay is light grey to dark grey. Iron concretions abundent.
220	228			Silt, some clay, trace fine sand, light brown to light grey, micaceous, few iron concretions.
228	233			Silt, some clay, trace fine sand, light brown to light grey, micaceous, few iron concretions.
233	240			Sand, fine, and silt, trace clay, light brown, micaceous, abundent iron concretions.
240	243			Sand, fine, and silt, trace clay, light brown, micaceous, abundent iron concentrations.
243	254			Sand, fine, some medium, some silt, light brown.
254	257			Sand, fine, and clay, trace silt, rusty brown, iron concretions.
57	260			Clay, trace sand, fine, trace silt, light brown to grey, micaceous.
260	263			Clay, trace sand, fine, trace silt, light brown to grey, micaceous.
263	272			Sand, fine, and silt, rusty brown, iron concretions.
272	280			Sand, fine to medium, some silt, brown to rusty brown, some iron concretions.
280	285			Sand, fine to medium, trace silt, brown to rusty brown.
285	295			Sand, fine, some medium, some silt, brown.
295	300			Sand, medium, some fine, trace silt, light brown.
300	315			Sand, medium, some fine, trace silt, light brown.
315	320			Sand, fine, some medium, some silt, trace clay, light brown to grey, some iron concretions.
320	326			Sand, fine, some medium, some silt, trace clay, light brown to grey, some iron concretions.
326	332			Sand, fine, trace medium, and silt, trace clay, light grey, micaceous.
2	336			Sand, fine to medium, some silt, light grey/brown, micaceous.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: PK-10 PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
336	340	--	--	Sand, fine, trace medium, some silt, trace clay,
				light grey, micaceous.
340	345			Sand, fine, and silt, light brownish/grey.
345	354			Sand, fine, some medium, some silt, light brown turning
				greyer with depth.
354	360			Sand, fine, some medium, some silt, grey.
360	370			Sand, fine, some medium, some silt, grey.
370	376			Sand, fine to medium, trace coarse, trace silt, light
				grey, some iron concretions.
376	380			Sand, medium, some fine, some coarse, trace silt, light
				grey/brown.
380	385			Sand, medium, some fine, some coarse, trace silt,
				light grey/brown.
385	392			Sand, medium, some fine, some coarse, trace silt,
				brown, micaceous.
392	394			Sand, medium, some fine, trace coarse, trace silt,
				brown, micaceous, grading to brownish red.
394	400			Sand, medium, trace fine, rusty brown, micaceous, some
				iron concretions.
400	405			Sand, medium, trace coarse, trace fine, brown,
				micaceous.
405	416			Sand, medium, trace coarse, trace fine, brown to dark
				brown.
416	420			Sand, fine, trace medium, some silt, light brown to
				grey, micaceous.
420	428			Sand, fine, trace medium, some silt, light brown to
				grey, micaceous.
428	440			Sand, fine, and silt, trace clay, micaceous, light grey.
440	444			Sand, fine, and silt, trace clay, micaceous, light grey.
444	452			Sand, medium, some fine, trace coarse, light brown,
				micaceous, iron concretions.
452	460			Sand, medium, and fine, some silt, light grey,
				micaceous.

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: PK-10 PREPARED BY: S. Zagaja

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
460	462	--	--	Sand, medium, and fine, some silt, light grey, micaceous.
462	477			Clay, some silt, very competent, medium grey, some iron concretions.
477	479			Sand, fine, trace medium, trace silt, light brown, micaceous.
479	485			Sand, fine, trace medium, trace silt, light brown, micaceous.
485	496			Sand, medium, trace fine, light brown, iron concretions, very soft.
496	499			Sand, fine to medium, trace silt, reddish brown grading to light grey, iron concretions.

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SAMPLE/CORE LOG

BORING/WELL: RB-11 PROJECT NO: LKB/Syosset Landfill NY0029008

SITE LOCATION: Syosset Recharge Basin on Belmont Circle DRILLING STARTED: 8/4/93 DRILLING COMPLETED: 9/26/93

TOTAL DEPTH DRILLED: 509 ft HOLE DIAMETER: 10/8 in TYPE OF SAMPLE/ CORING DEVICE: Barber - cuttings Mud/reverse - split-spoons

LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 inches SAMPLING INTERVAL: continuous/ every 20 ft

LAND-SURFACE ELEVATION: { } SURVEYED { } ESTIMATED DATUM:

DRILLING FLUID USED: water/mud/water DRILLING METHOD: Barber/mud rotary/reverse rotary

DRILLING CONTRACTOR: Delta Well & Pump Co. DRILLER: John McAdden/ Joe Guggino HELPER: Mark/Rich/Brian

PREPARED BY: Sarah Zagaja/ Mike Breault HAMMER WEIGHT: 175 HAMMER DROP: 24 inches

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
0	5	--	--	Top soil, dark brown, dry.	Barber
5	13	--	--	Sand, fine to coarse, and gravel, fine to coarse, light brown, dry.	Barber
13	17	--	--	Sand, fine to coarse, and gravel, fine to coarse, light brown, dry.	Barber
17	26	--	--	Sand, medium to coarse, some gravel, fine to medium, light brown, dry.	Barber
26	33	--	--	Gravel, fine to coarse, some sand, medium to coarse, light brown, dry.	Barber
33	38	--	--	Sand, medium to coarse, some gravel, fine to medium, trace coarse, light brown, dry.	Barber
38	48	--	--	Sand, medium to coarse, trace fine, some gravel, fine to medium, light brown, dry.	Barber
48	54	--	--	Sand, medium to coarse, trace gravel, fine, light brown.	Barber
54	59	--	--	Sand, medium to coarse, some fine, some gravel, fine to medium, light brown, dry.	Barber
59	63	--	--	Sand, medium, some fine, trace coarse, light brown, dry.	Barber
63	75	--	--	Sand, medium to coarse, trace fine, some gravel, fine to medium.	Barber
75	86	--	--	Sand, medium to coarse, some fine, trace gravel, fine, dry.	Barber

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RB-11 PREPARED BY: S. Zagaja/ M. Breault

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
FROM	TO				
86	96	--	--	Sand, fine to medium, light brown, slightly moist.	Barber
96	106	--	--	Sand, fine to medium, light brown, slightly moist.	Barber
106	113	--	--	Sand, fine to medium, trace clay, light grey to brown, moist.	Barber
113	118	--	--	Sand, fine, some clay, trace medium sand, trace silt, light brown to grey, clay is in stringers, moist. Magothy at approximately 114-115 ft bgs.	Barber
139	141	.5	16-21-36-42	Sand, fine, some silt, trace clay, thin layers (1/4" - 1/2") of light grey, rusty orange, and light brown, wet, poorly sorted, moderately compact.	Mud Rotary
159	161	1	21-32-39-46	Sand, fine, some medium in top portion of spoon grading downward to sand, fine, some silt, some iron oxide aggregates, wet, moderately sorted, compact, brown, rusty brown, and light grey layers.	Mud Rotary
179	181	2	27-37-28-46	Sand, fine, some silt (2" layers contain some clay), light brown to rusty brown, trace grey layers, wet, moderately compact.	Mud Rotary
199	201	.5	29-33-38-47	Sand, fine, trace medium, trace silt, light brown, with some grey and some rusty brown layers, wet, compact, moderately sorted.	Mud Rotary
219	221	.75	33-38-44-42	Sand, fine, trace silt, trace clay grading with depth to sand, fine, trace medium light grey to tan, minimal iron staining, wet, moderately sorted, compact.	Mud Rotary
239	241	1	38-41-46-51	Sand, fine, trace silt, light grey with minimal iron stained layers, wet, poorly sorted, very compact, micaceous.	Mud Rotary

SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RB-11 PREPARED BY: S. Zagaja/ M. Breault

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
259	261	1	46-39-48-55	Sand, fine, trace silt, light grey to light brown, wet, micaceous, minimal iron staining.	Mud Rotary
279	281	1.5	35-32-46-49	Sand, fine, some silt with two 2-inch layers which contain some clay, light grey, micaceous, very compact, wet.	Mud Rotary
299	301	.75	40-45-47-56	Sand, medium, some fine, light greyish tan, some red layers, very compact, wet, poorly sorted.	Mud Rotary
319	321	.5	35-38-43-58	Clay, trace silt, trace fine sand, well sorted, bottom 1 inch is sand, medium, some fine, light greyish brown. Clay portion is extremely compact, contains fragments of lignite.	Mud Rotary
[illegible]9	341	1	37-30-35-46	Sand, fine, trace medium, trace silt, light grey, micaceous, compact.	Mud Rotary
359	361	1	33-39-38-49	Sand, fine, some medium, light grey, micaceous, compact.	Mud Rotary
379	381	.5	30-39-48-56	Sand, medium, trace fine, micaceous, light grey, compact.	Mud Rotary
399	401	1	43-38-41-52	Sand, medium, trace fine, greyish-pink, compact, poorly sorted.	Mud Rotary
419	421	2	35-23-28-26	Clay, trace silt, light brownish grey, very competent, moist, slightly mottled.	Mud Rotary
439	441	1	40-32-53-59	Sand, medium, some fine, trace coarse, poorly sorted, relatively loose, light grey, wet.	Mud Rotary
459	461	.75	39-31-38-32	Sand, medium and fine, light grey to tan, poorly sorted, moderately loose, wet.	Reverse Rotary
				*NOTE: From approximately 180 ft through 259 ft there were some clay layers. Apparently these layers were missed in the spoons.	

GERAGHTY & MILLER, INC.

SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RB-11 PREPARED BY: S. Zagaja/ M. Breault PAGE: 4 of 4

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
484	486	1	46-36-	Silty clay, grey to whitish, moderately	Reverse Rotary
			37-41	plastic (medium plasticity), dry to	
				damp; trace sand, fine to medium.	
494	496	1	37-53-	Sand, fine, in 2-inch layers, tan to	Reverse Rotary
			47-45	yellow to brown, trace coarse, moderately	
				loose, wet, no silt, mainly quartz.	

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SAMPLE/CORE LOG

BORING/WELL: RW-12 PROJECT NO: LKB - Syosset Landfill NY0029008 PAGE: 1 of 4

SITE LOCATION: Roadway - off of Gordon Drive

DRILLING STARTED: 8/25/93 DRILLING COMPLETED: 9/27/93

TOTAL DEPTH DRILLED: 500 HOLE DIAMETER: 21/10/8 inches TYPE OF SAMPLE/ CORING DEVICE: Auger/cable tool - cuttings Mud rotary/reverse - split spoons

LENGTH & DIAMETER OF CORING DEVICE: 2 feet x 2 inches SAMPLING INTERVAL: See log

LAND-SURFACE ELEVATION: { } SURVEYED { } ESTIMATED DATUM:

DRILLING FLUID USED: Water/mud/water DRILLING METHOD: H.S.A./cable tool/ mud rotary/reverse rotary

DRILLING CONTRACTOR: Delta Well & Pump Co. DRILLER: Joe Guggino HELPER: Rich

PREPARED BY: Sarah Zagaja & David Vines HAMMER WEIGHT: 175 HAMMER DROP: 24 inches

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
0	3	--	--	Topsoil, sand, medium to coarse and gravel, fine to coarse, some cobbles, many roots, dark brown, moist.	H.S.A.
3	8	--	--	Gravel, fine to coarse, some sand, medium to coarse, some cobbles, fine to coarse, poorly sorted, dry, medium brown.	H.S.A.
8	20	--	--	Gravel, fine to coarse, some sand, medium to coarse, some cobbles, fine to coarse, poorly sorted, dry, medium brown (some intervals seemed to have only trace sand).	H.S.A.
20	28	--	--	Sand, medium to coarse, some gravel, fine to medium, trace coarse, brown, poorly sorted, dry.	H.S.A.
28	34	--	--	Sand, medium to coarse, and gravel, fine to medium, trace coarse, brown, poorly sorted, dry.	H.S.A.
34	48	--	--	Sand, medium to coarse, trace fine, some gravel, fine to medium, dark brown, dry.	H.S.A.
48	52	--	--	Sand, medium to coarse, trace fine, some gravel, fine to medium, dark brown, dry.	H.S.A.
52	61	--	--	Gravel, fine, some medium, some sand, medium to coarse, brown, poorly sorted.	Cable Tool
	65	--	--	Sand, medium and coarse, some gravel, fine	Cable Tool

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SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RW-12 PREPARED BY: Sarah Zagaja/ David Vines

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
				to medium, little silt, poorly sorted, light brown.	
72	76	--	--	Sand, coarse, some medium, some gravel, fine, trace medium, brown, faint odor. HNU = 2 ppm.	Cable Tool
78	83	--	--	Sand, medium, some fine, some coarse, trace fine gravel, medium brown, poorly sorted, faint odor. HNU = 1 ppm.	Cable Tool
83	85	--	--	Sand, fine, little silt, some clay, light brown to grey, well sorted (clay is in thin layers). HNU = 1 ppm.	Cable Tool
89	94	--	--	Sand, fine, trace medium, little clay (in layers), little silt, well sorted, light brown to grey. HNU = 0 ppm.	Cable Tool
[illegible]	96	--	--	Sand, fine, trace medium, little clay (in layers), little silt, well sorted, light brown to grey. HNU = 0 ppm.	Cable Tool
96	105	--	--	Sand, medium, some fine, some silt, trace clay, light brown, poorly sorted. HNU = 0 ppm.	Cable Tool
119	121	1.0	21,26, 34,41	Sand, fine, light brown to white, some silt, well sorted. OVA = 0.2	Mud Rotary
139	141	1.0	27,38, 34,35	Sand, fine, some very fine, orange to white, trace silt, poorly sorted micaceous. OVA = 0.5	Mud Rotary
159	161	0.75	47,55, 78,83	Sand, medium, some fine, trace silt, light brown to brown, moderately sorted, micaceous. OVA = 0.5	Mud Rotary
170	175	--	--	Streaks of clay in cuttings, clumps of white and clumps of orange (separate) present.	Mud Rotary
179	181	0.75	21,29, 34,36	Sand, fine, some medium, light brown to brown, well sorted. HNU = 1 ppm	Mud Rotary

GERAGHTY & MILLER, INC.

SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RW-12 PREPARED BY: Sarah Zagaja/ David Vines PAGE: 3 of 4

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
199	201	0.70	38,50	Sand, fine, some very fine, light brown	Mud Rotary
			44,49	to orange brown, well sorted.	
				OVA = 3.5	
219	221	1.75	31,24,	N.R. first time down - top 3 inches silty	Mud Rotary
			13,29	fine sand, whitish grey, - bottom	
				18 inches sand, fine, some very fine,	
				some silt, tan/white to light grey, well	
				sorted. OVA = 5.0	
239	241	0.45	63,49,	N.R. first attempt - silty sand, fine to	Mud Rotary
			37,51	very fine, tan and light grey, well	
				sorted. OVA = 1.5 ppm; HNU = 0.4	
259	261	0.75	42,31,	Sand, fine, some very fine, and silt,	Mud Rotary
			38,27	shades of tan-brown, very compact and	
				well sorted.	
[illegible]79	281	1.0	29,33,	Sand, fine, some medium, some silt, light	Mud Rotary
			44,26	brown to brown, well sorted.	
299	301	1.5	37,26,	Sand, fine, some medium, some silt, light	Mud Rotary
			43,50	tan to orange brown, well sorted.	
319	321	1.25	32,38,	Sand, fine, trace medium, some silt, tan	Mud Rotary
			45,30	to orange brown, well sorted.	
339	341	0.5	35,33,	Sand, fine, some medium, trace coarse,	Mud Rotary
			47,41	light tanish to white, poorly sorted.	
359	361	0.35	25,27,	Sand, medium, some coarse, some fine, tan	Mud Rotary
			35,28	to brown, some gravel, iron oxide, poorly	
				sorted.	
379	381	1.75	25,29,	Sand, fine to very fine, and silt, trace	Mud Rotary
			39,42	medium sand, light grey to tan, well	
				sorted.	
399	401	1.0	29,27,	Sand, fine to medium, some silt, light tan	Mud Rotary
			39,32	(almost white) to light brown, poorly	
				sorted.	
419	421	1.9	21,27,	Sand, fine to very fine, some silt, light	Mud Rotary
			16,30	grey to light brown, some iron oxide,	

GERAGHTY & MILLER, INC.

SAMPLE/CORE LOG (Cont.d)

BORING/WELL: RW-12 PREPARED BY: Sarah Zagaja/ David Vines

SAMPLE DEPTH (FT BELOW LAND SURFACE) FROM	TO	CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	DRILLING METHOD
				well sorted. Last 3" very incompetant	
				light grey clayey sand.	
420	430			White clay in cuttings.	Mud Rotary
439	441	0.75	18,22,	Sand, fine to medium, some silt, trace	Mud Rotary
			28,30	gravel, light grey to tan, very well	
				sorted, some iron oxide, white clay	
				stringers present.	
450	460			Gravel, medium in cuttings.	Mud Rotary
459	461	1.25	33,31,	Top 5 inches-clayey sand, white with fine	Mud Rotary
			28,34	sand - bottom 10 inches-sand, medium to	
				fine, trace silt, light grey to tan,	
				iron oxide staining, poorly sorted.	
470	475			Fine sand, iron oxide concretions,	Mud Rotary
				clayey sand (light brown) and coarse	
				gravel in cuttings.	
475	485			White clay then fine and very fine tan	Reverse Rotary
				sand in cuttings.	
484	486	0.5	25,32,	Sand, fine to medium, some coarse, little	Reverse Rotary
			38,46	silt, light tan; iron oxide present,	
				very compact, poorly sorted.	
				HNU = 0.5 ppm	
484	494			Some white clay stringers, some fine brown	Reverse Rotary
				sand, and a lot of coarse gravel in	
				cuttings.	
494	496	1.25	56,49,	Sand, fine to coarse, some gravel, medium	Reverse Rotary
			48,53	to coarse, white/tan, trace clay	
				stringers, white; iron oxide, very	
				compact, poorly sorted.	
495	500			Cuttings have fine brown sand and medium	Reverse Rotary
				to coarse gravel.	

APPENDIX D

STATISTICAL PROCEDURE USED TO ESTABLISH TERMINATION CRITERIA

APPENDIX D

STATISTICAL PROCEDURE USED TO ESTABLISH TERMINATION CRITERIA

The termination depths of the two exploratory borings (SY-3DD and PK-10D) were determined by using statistical methods to analyze water-quality data from public supply and monitoring wells near the Syosset Landfill. Initially, the termination criteria were statistically determined using background water-quality data obtained in accordance with the method specified in the Work Plan and Site Operations Plan. Action levels for each primary and secondary leachate parameter were calculated by adding two standard deviations (σ) to the average concentration ($\bar{x}$) calculated for each respective parameter ($\bar{x} + 2\sigma$). These data are presented in Table D-1. However, as the data in Table D-1 shows only a limited data set was obtained (15 to 47 data points per parameter) using the specified statistical method, and the upper confidence limits were, in Geraghty & Miller's opinion, too high to be indicative of background water-quality conditions. Therefore, additional water-quality data were obtained and two other statistical methods, which are more appropriate for the number of data points, were used to compute the action levels. These two equations were used to determine the 95 percent confidence limits about the median and average leachate indicator concentrations and are presented below.

Lower Limit *Upper Limit*

$$\bar{x} - 1.96 \frac{\sigma}{\sqrt{n}} \leq average \leq \bar{x} + 1.96 \frac{\sigma}{\sqrt{n}}$$

$$X_{\frac{n+1}{2}} - 1.96 \frac{\sqrt{n}}{2} \leq median \leq X_{\frac{n+1}{2}} + 1.96 \frac{\sqrt{n}}{2}$$

$\bar{x}$ = *average concentration.*
σ = *standard deviation.*
n = *number of observations.*
Lower limit about median/average interpolated ordered data set.
Upper limit about median/average interpolated ordered data set.

$X_{\frac{n+1}{2}}$ = *the* $X_{\frac{n+1}{2}}$ *value of the ordered data.*

The statistical data generated from these two equations, including the action levels used to determine the termination criteria, are summarized in Table D-2. As can be seen from Table D-2, the limits about the median and average are similar, and the upper limits about the average were selected as the action levels for each leachate parameter except ammonia. No action level was calculated for ammonia (primary indicator) using the selected equation because there were still too few data points for this particular parameter (This parameter was not an analyte for the water districts). Therefore, the action level was set at twice the detection limit of the ammonia meter used (0.12 milligrams per liter [mg/L]).

According to the Work Plan, each exploratory boring was to be terminated when the concentrations of the three primary leachate indicators were below their respective action levels in two consecutive samples. However, if only one of the primary indicators remained slightly above its action level in consecutive samples, then the action levels of the three secondary leachate indicator parameters were compared to field analytical results and the boring was terminated when one or more of the secondary action levels were not exceeded.

Table D-1. Preliminary Statistical Evaluation of Leachate Indicator Parameter Data for Wells Within a two-Mile Radius of the Syosset Landfill, Syosset, New York.

Parameter	No. of Points	Average	Median	Standard Deviation (S.D.)	Confidence Limits About the Average (Lower)	Confidence Limits About the Average (Upper)	Confidence Limits About the Median l (Lower)	Confidence Limits About the Median u (Upper)	Action Levels (Average+2S.D.)
Alkalinity	24	13.1	10.2	12.3	8.21	18.02	6.34	16	37.64
Hardness	24	48.6	47.0	20.8	40.24	56.92	32	60.2	90.28
Chloride	40	18.7	13.7	19.7	12.62	24.84	12.5	15.72	58.15
Specific Conductance	44	186.2	162.7	103.6	155.57	216.79	150	196	393.37
pH	47	5.6	5.7	0.5	5.46	5.75	5.5	5.8	6.62
Temperature	15	13.8	14.0	1.4	13.11	14.49	13	15	16.55

Table D-2. Final Statistical Evaluation of Leachate Indicator Parameter Data for Wells Within a two-Mile Radius of the Syosset Landfill, Syosset, New York.

Parameter	No. of Points	Average	Median	Standard Deviation (S.D)	Confidence Limits About the Average (Lower)	Confidence Limits About the Average (Upper) (a)	Confidence Limits About the Median l (Lower)	Confidence Limits About the Median u (Upper)	(Average+2S.D.)
Alkalinity	115	9.0	6.0	9.1	7.37	10.69	5.0	7.0	27.20
Hardness	115	38.8	33.0	23.1	34.58	43.03	30	39	85.08
Chloride	131	16.6	13.0	13.9	14.25	19.00	12	14.4	44.34
Specific Cond.	44	186.2	162.7	103.6	155.57	216.79	150	196	393.37
pH	47	5.6	5.7	0.5	5.48	5.75	5.5	5.8	6.62
Temperature	15	13.8	14.0	1.4	13.11	14.49	13	15	16.55

Shading represents the most appropriate limits based on the data set.

(a) Selected as action level.

APPENDIX E

GEOPHYSICAL LOGS

COMPANY: GERAGHTY AND MILLER

HOLE ID: SY3DD

LOCATION: SYOSSET

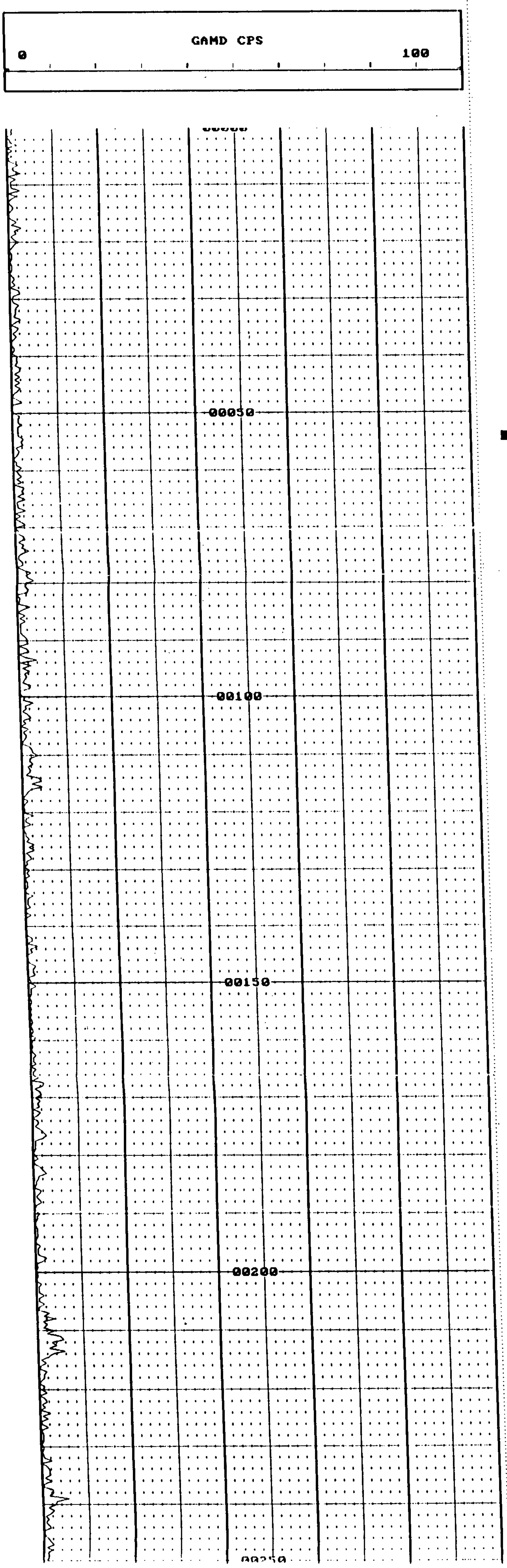
DATE: 12-2-92

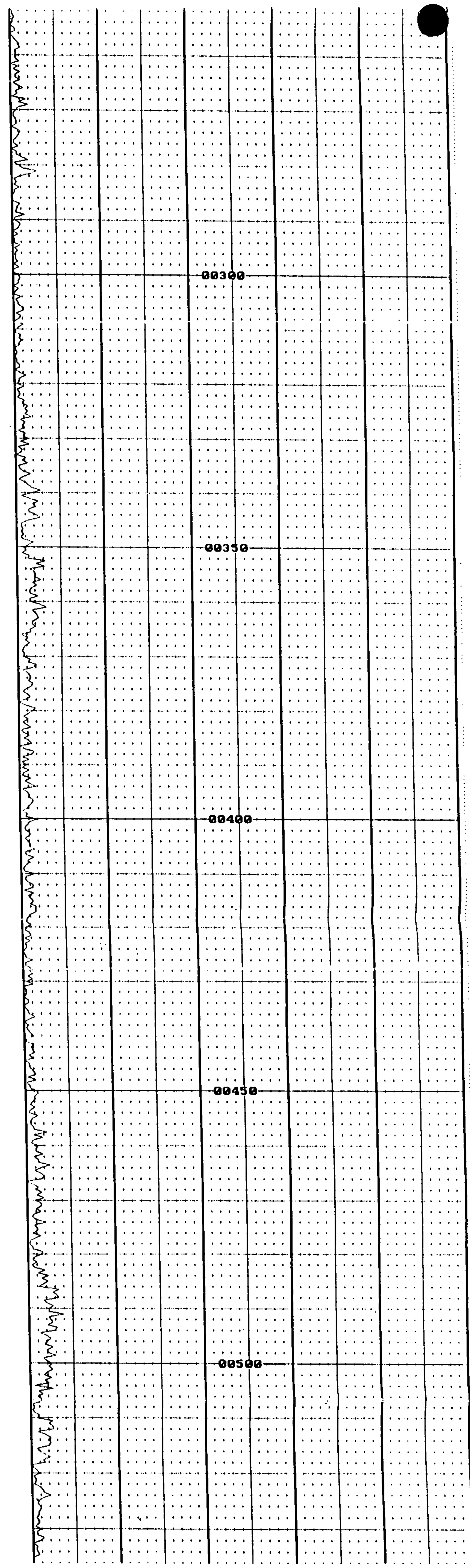
TIME: 0120

OPERATOR: DM

COMMENT1: GAMMA UP

COMMENT2:





COMPANY: GERAGHTY AND MILLER

HOLE ID: PK-10DG2

LOCATION: SYOSSET

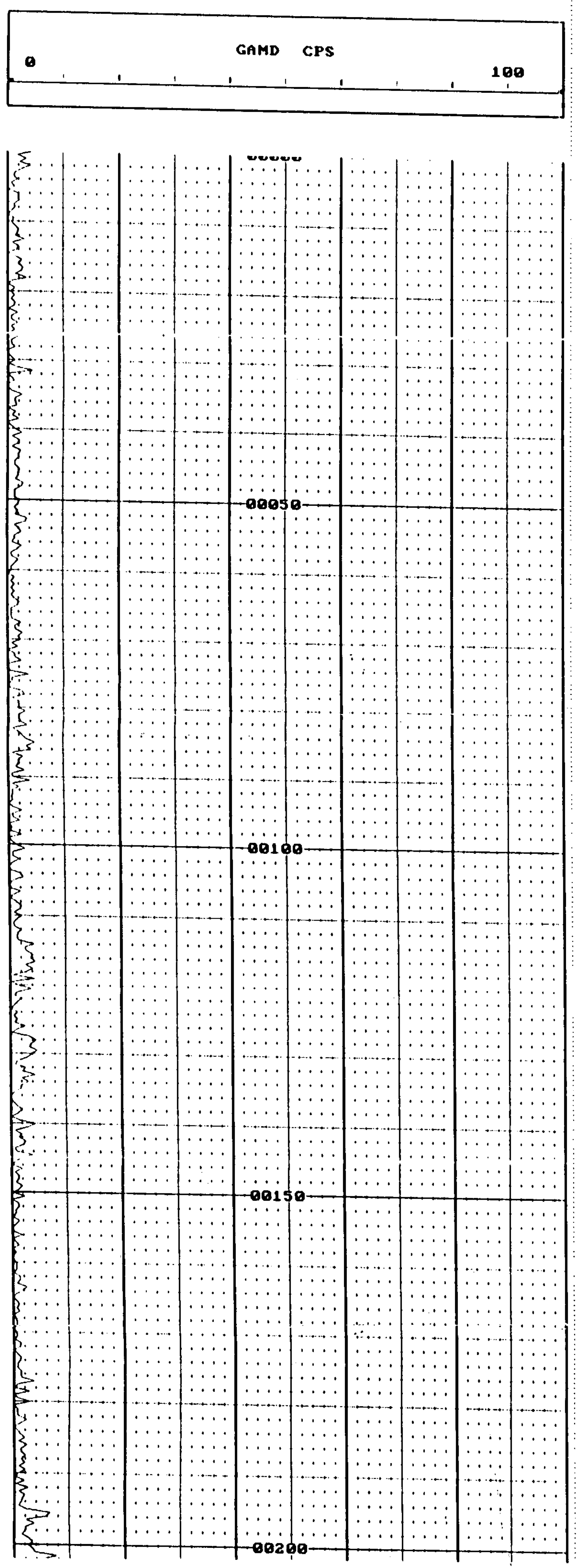
DATE: 12-29-92

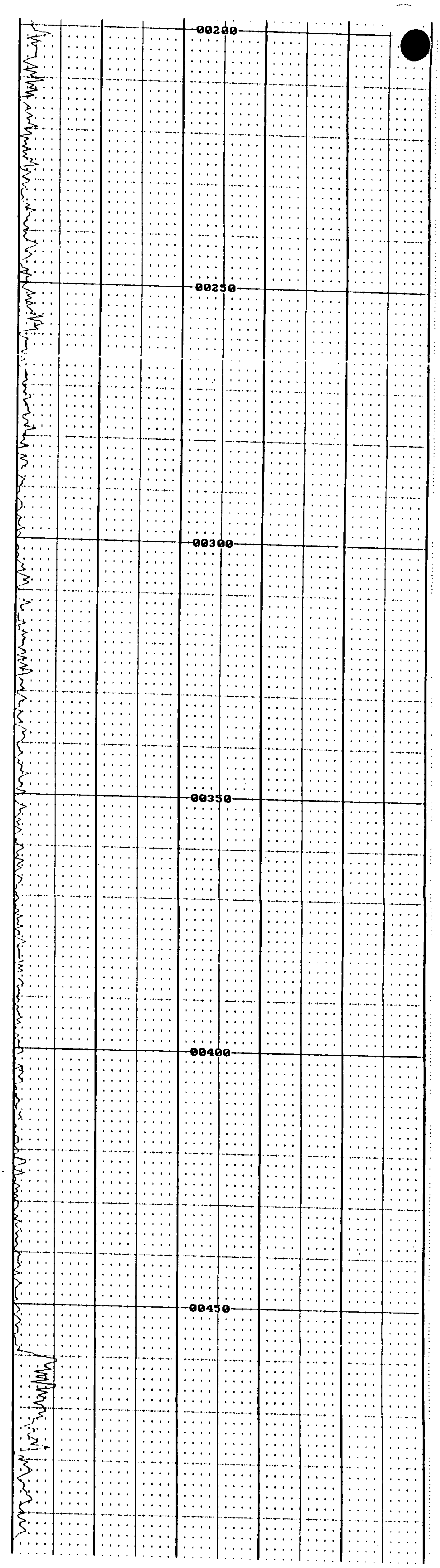
TIME: 1100

OPERATOR: GE

COMMENT1: GAMMA UP

COMMENT2:





COMPANY: GERAGHTY AND MILLER

HOLE ID: RB-11

LOCATION: SYOSSET

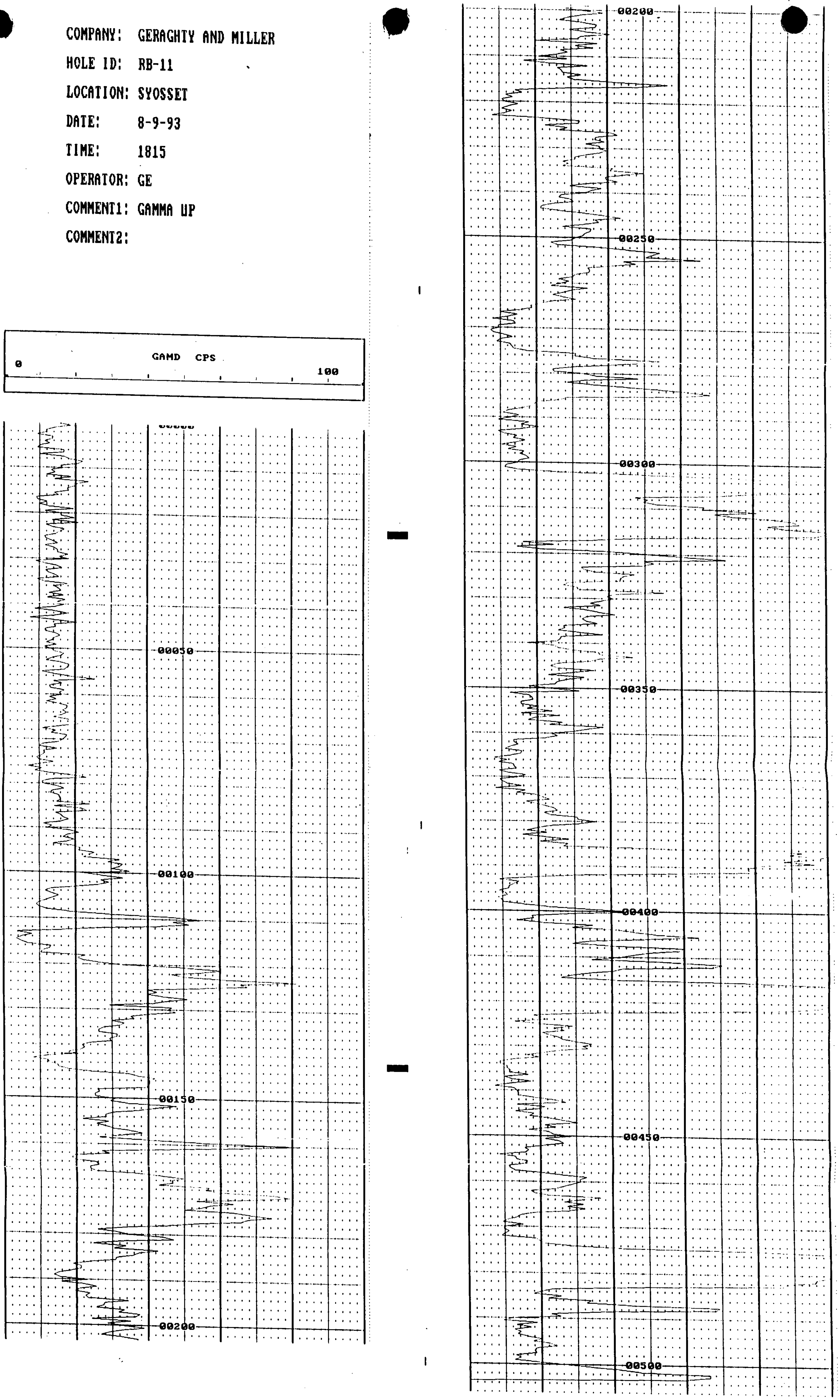
DATE: 8-9-93

TIME: 1815

OPERATOR: GE

COMMENT1: GAMMA UP

COMMENT2:



COMPANY: GERAGHTY AND MILLER

HOLE ID: RB-11

LOCATION: SYOSSET

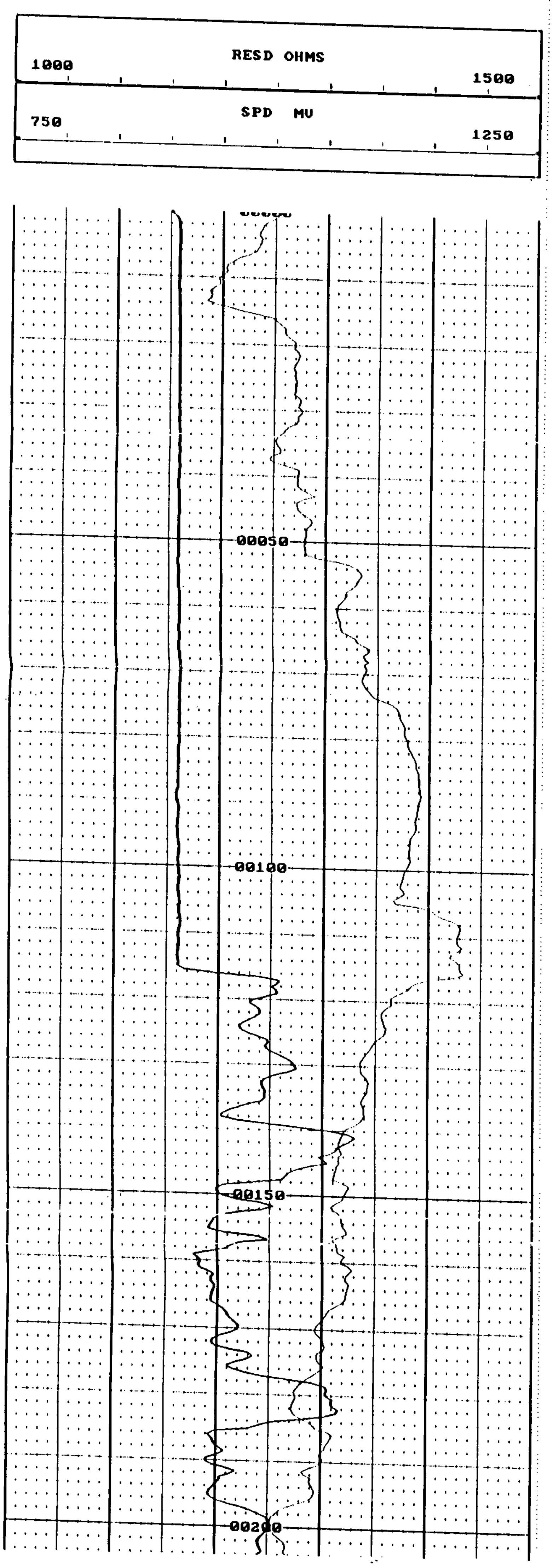
DATE: 8-9-93

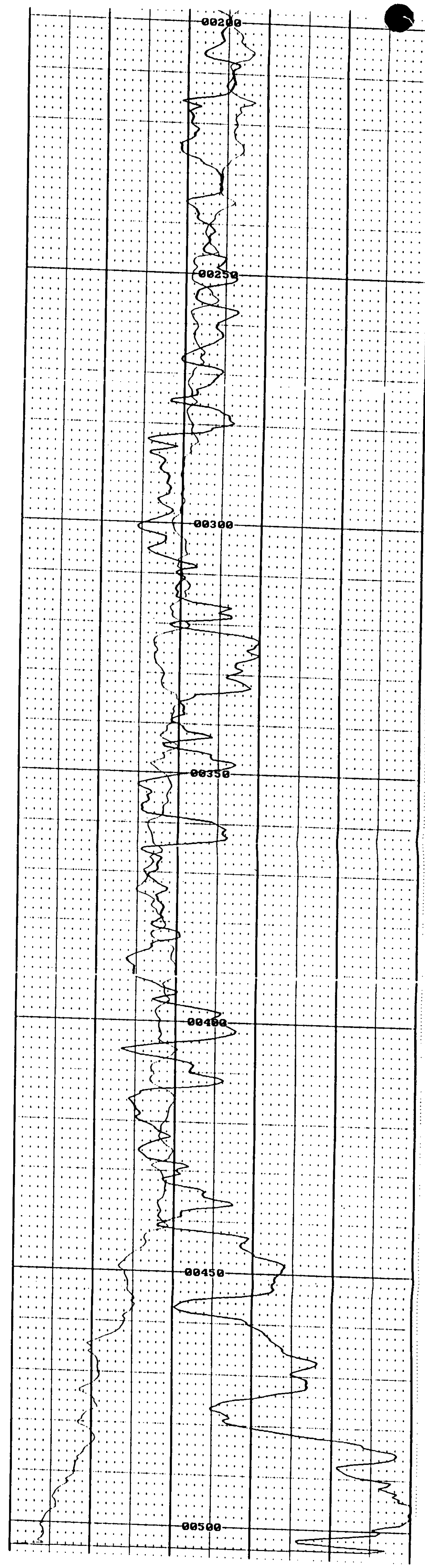
TIME: 1815

OPERATOR: GE

COMMENT1: R-SP UP

COMMENT2:





COMPANY: GERAGHTY AND MILLER

HOLE ID: RW-12D

LOCATION: SYOSSET

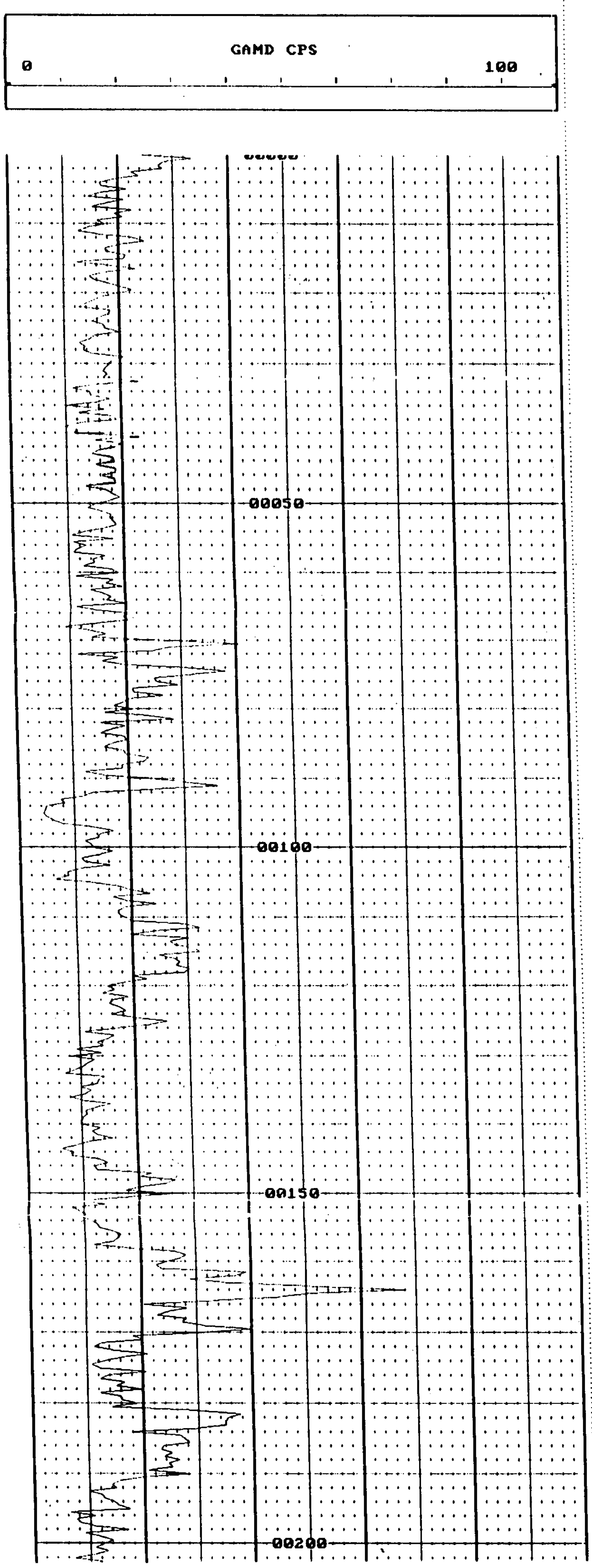
DATE: 9-23-93

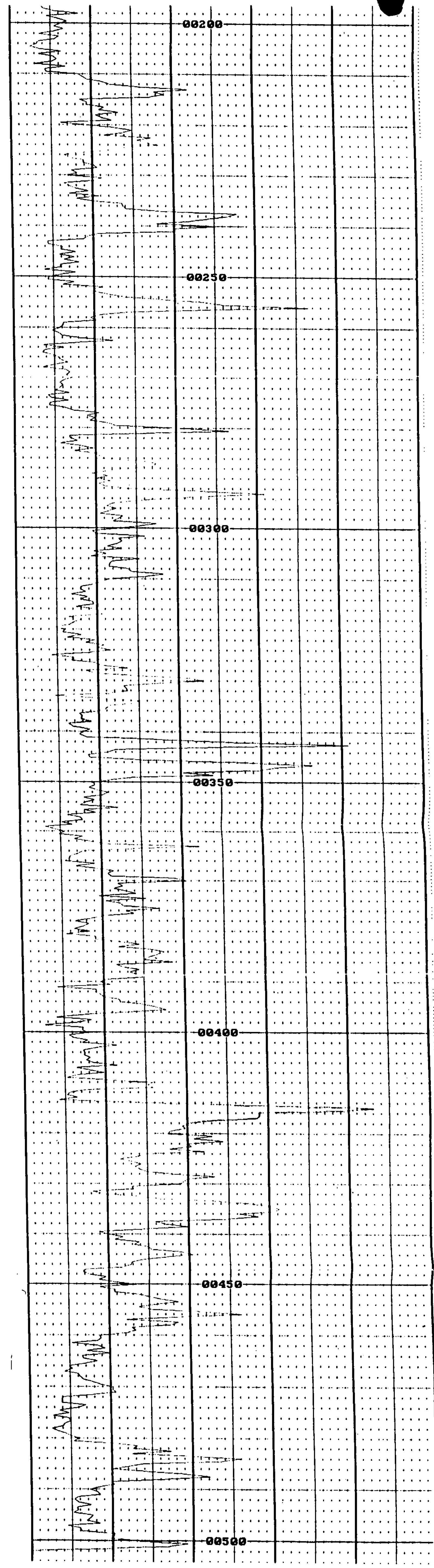
TIME: 1700

OPERATOR: GE

COMMENT1: GAMMA UP

COMMENT2:





COMPANY: GERAGHTY AND MILLER

HOLE ID: RW-12D

LOCATION: SYOSSET

DATE: 9-23-93

TIME: 1700

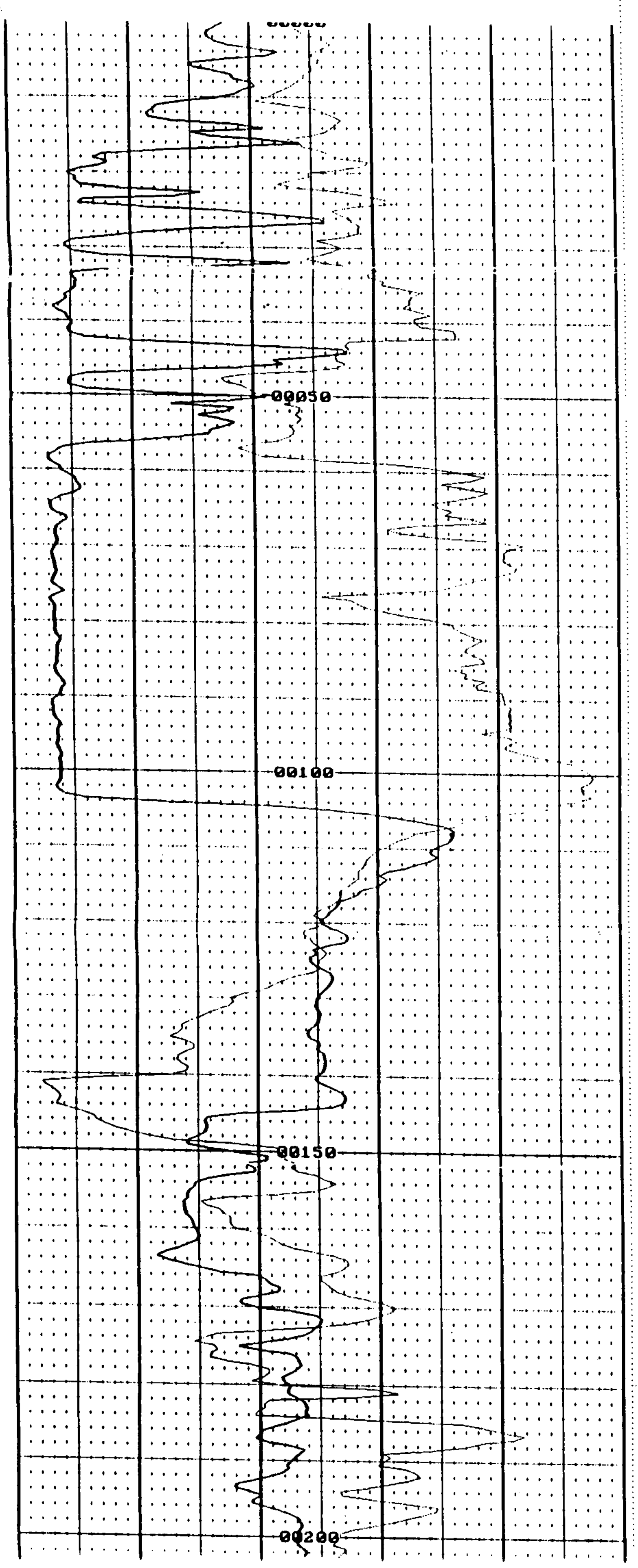
OPERATOR: GE

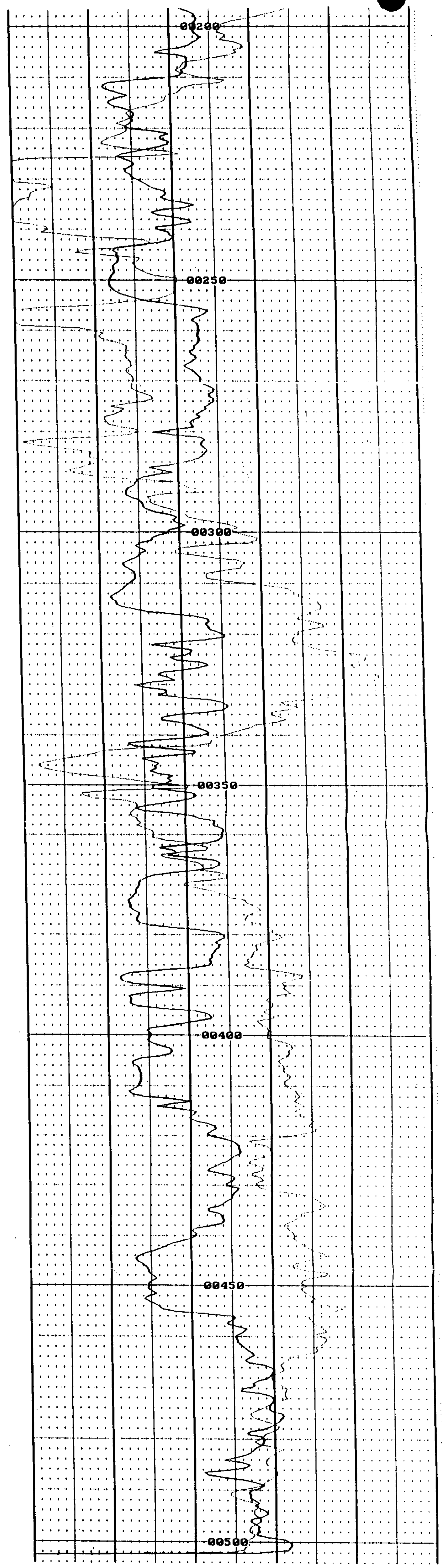
COMMENT1: R-SP UP

COMMENT2:

RESD OHMS
1000 1500

SPD MV
750 1250



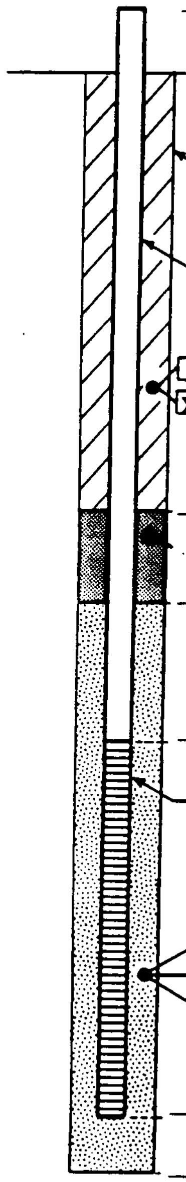


APPENDIX F

MONITORING WELL CONSTRUCTION LOGS

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



ft LAND SURFACE

see remarks inch diameter drilled hole

Well casing, 2 inch diameter, Schedule 40 PVC

☐ Backfill
☒ Grout Volclay

512 ft*

fine grained sand #00

517 ft*

530 ft*

Well Screen. 2 inch diameter
S.S. , 10 slot

☐ Gravel Pack
☒ Sand Pack #1
☐ Formation Collapse

540 ft*

540 ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB - Syosset Landfill Well SY3DD

Town/City Syosset

County Nassau State New York

Permit No. ____

Land-Surface Elevation and Datum ____ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 11/9/92 to 12/9/92

Drilling Method Barber (modified air rotary)

Drilling Contractor Catoh

Drilling Fluid Air, water

Development Technique(s) and Date(s)

Compressed Air - January 1993

Final Turbidity = 7 NTUs

Fluid Loss During Drilling Approx. 12,000 gallons

Water Removed During Development 27,000 gallons

Static Depth to Water 111.2 feet below M.P.

Pumping Depth to Water not measured feet below M.P.

Pumping Duration ____ hours

Yield 25 gpm Date ____

Specific Capacity ____ gpm/ft

Well Purpose monitoring

Remarks Well was drilled with:

16-inch diameter steel casing	0-118 ft
10-inch diameter steel casing	0-318 ft
8-inch diameter steel casing	0-464 ft
6-inch diameter steel casing	0-540 ft

The 16, 10, and 8-inch casings were left in place.

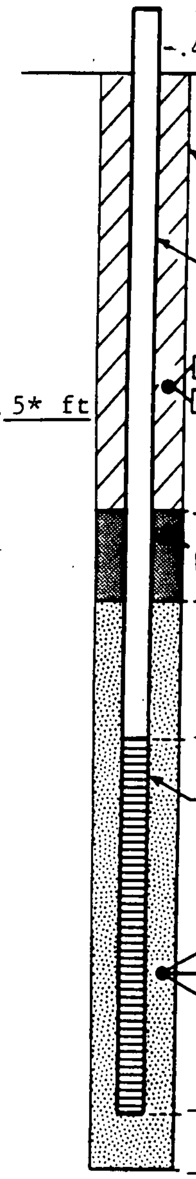
The 6-inch was pulled back to 528 ft.

Prepared by Sarah Zagaja

G&M Form 05 5-87

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



flush mount
.4ft
LAND SURFACE

Stainless-steel seal with rubber gasket

12 inch diameter drilled hole

Well casing, 4 inch diameter, Sch 40 PVC

☐ Backfill
☐ Grout

137.5* ft

ft*

Bentonite 5 ft*

139 ft*

Well Screen. 4 inch diameter S.S., 20 slot

☐ Gravel Pack
☒ Sand Pack #2
☐ Formation Collapse

149 ft*

153 ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB - Syosset Landfill OU2 RI Well PK-10S

Town/City Syosset

County Nassau State NY

Permit No. --

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 3/24/93, 3/25/93

Drilling Method Barber* and Cable-Tool*

Drilling Contractor Delta

Drilling Fluid Water

Development Technique(s) and Date(s)
Submersible pump with backwashing
3/26/93, 3/29/93, 3/30/93

Fluid Loss During Drilling 2,000 gallons

Water Removed During Development 19,000 gallons

Static Depth to Water 110 feet below M.P.

Pumping Depth to Water 137 feet below M.P.

Pumping Duration 15 hours

Yield 40 gpm Date 3/30/93

Specific Capacity 1.5 gpm/ft

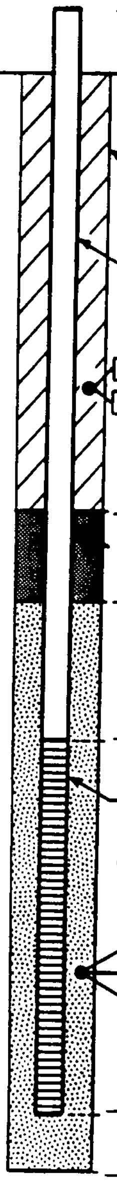
Well Purpose Monitoring

Remarks * 10-inch surface casing was installed to 137.5 ft by the barber rig (modified air rotary method) and the cable-tool rig was used to install the remainder of the borehole (to 153 ft). The 10-inch steel casing was left in place.
Turbidity (final) = 25 NTUs

Prepared by Sarah Zagaja

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB - Syosset Landfill Well PK-10I

Town/City Syosset

County Nassau State New York

Permit No. --

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) April 14, 1993

Drilling Method mud rotary/reverse rotary

Drilling Contractor Delta Well and Pump Co.

Drilling Fluid mud/water

Development Technique(s) and Date(s)
Compressed air w/surging - 4/22/93

Fluid Loss During Drilling approximately 500 gallons

Water Removed During Development 8,000 gallons

Static Depth to Water 106 feet below M.P.

Pumping Depth to Water ______ feet below M.P.

Pumping Duration ______ hours

Yield ______ gpm Date ______

Specific Capacity ______ gpm/ft

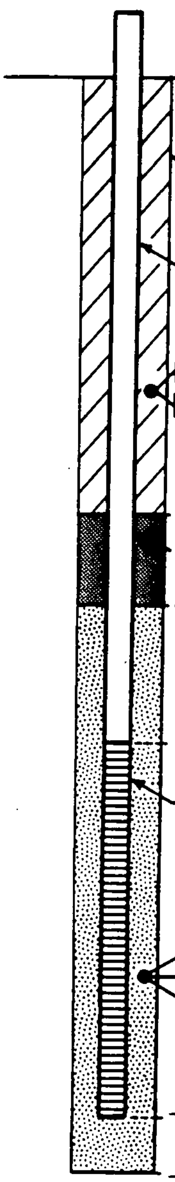
Well Purpose monitoring

Remarks *A 10-inch diameter steel surface casing, installed to 128 ft below grade by the cable-tool drilling method, was left in place. The borehole was then drilled to 328 ft by the mud rotary drilling method followed by the reverse rotary drilling method which was used to drill to the final depth.

Prepared by Sarah Zagaja

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Flush mount ft LAND SURFACE

see remarks inch diameter drilled hole

Well casing, 4 inch diameter, PVC - Schedule 40

☐ Backfill
☒ Grout Volclay

472 ft*

fine-grained sand #00

477 ft*

489 ft*

Well Screen. 4 inch diameter S.S., 10 slot

☐ Gravel Pack
☒ Sand Pack #1
☐ Formation Collapse

499 ft*

500 ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project: LKB - Syosset Landfill Well: PK-10D

Town/City: Syosset

County: Nassau State: New York

Permit No. ______

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s): 12/10/93 to 12/31/92

Drilling Method: Barber (modified air rotary)

Drilling Contractor: Catoh

Drilling Fluid: air, water

Development Technique(s) and Date(s):
Compressed Air - January 7, 8
Final Turbidity = 25 NTUs

Fluid Loss During Drilling: Approximately 8,000 gallons

Water Removed During Development: 15,000 gallons

Static Depth to Water: 116 ± feet below M.P.

Pumping Depth to Water: not measured feet below M.P.

Pumping Duration ______ hours

Yield: 25-30 gpm Date ______

Specific Capacity ______ gpm/ft

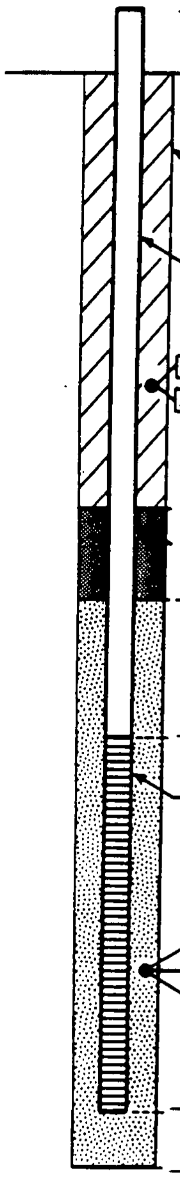
Well Purpose: monitoring

Remarks: Well was drilled with:
16-inch diameter steel casing 0-118 ft
10-inch diameter steel casing 0-460 ft
8-inch diameter steel casing 0-500 ft
The 16-inch and 10-inch casings were left in place and the 8-inch was pulled back to 484 ft.

Prepared by: Sarah Zagaja

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



ft LAND SURFACE

8 inch diameter drilled hole

Well casing, 4 inch diameter, Schedule 40 PVC

☐ Backfill
☒ Grout 100% Volclay

115 ft*

120 ft*

133 ft*

Well Screen. 4 inch diameter S.S., 10 slot

☐ Gravel Pack
☒ Sand Pack (#1)
☐ Formation Collapse

143 ft*

144 ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB/Syosset Landfill Well RB-11S

Town/City Syosset

County Suffolk State New York

Permit No. ______

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) August 26, 1993

Drilling Method Hollow-Stem Auger

Drilling Contractor Delta Well and Pump Co.

Drilling Fluid Water (to suppress heave)

Development Technique(s) and Date(s)
Submersible pump - 9/2/93

Fluid Loss During Drilling 1200 gallons

Water Removed During Development 2430 gallons

Static Depth to Water 109 feet below M.P.

Pumping Depth to Water * feet below M.P.

Pumping Duration 6.75 hours

Yield 6 gpm Date 9/2/93

Specific Capacity ______ gpm/ft

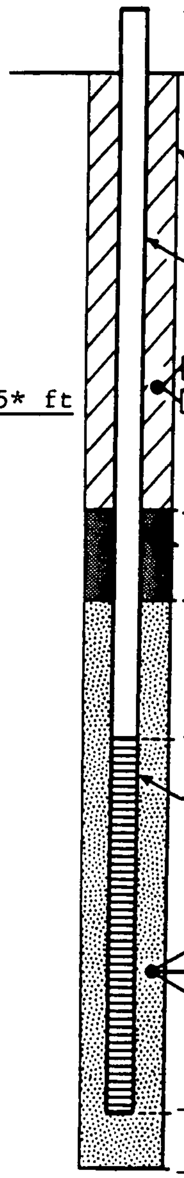
Well Purpose Monitoring

Remarks * Water depth indicator could not reach the water table during pumping due to tangling with the pump and hose.

Prepared by Sarah Zagaja

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



T ft LAND SURFACE

10*/8 inch diameter drilled hole

Well casing, 4 inch diameter, Schedule 40 PVC

139.5* ft

☐ Backfill
☒ Grout 100% Volclay

333 ft*

fine sand

339 ft*

348.5 ft*

Well Screen. 4 inch diameter
Stainless 10 slot

☐ Gravel Pack
☒ Sand Pack #1
☐ Formation Collapse

358.5 ft*

359 ft*

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB/Syosset Landfill Well RB-11I

Town/City Syosset

County Nassau State New York

Permit No. ____

Land-Surface Elevation and Datum ____ feet ☐ Surveyed ☐ Estimated

Installation Date(s) August 19, 1993

Drilling Method Barber*/mud-reverse rotary

Drilling Contractor Delta Well & Pump Co.

Drilling Fluid mud/water

Development Technique(s) and Date(s)
Compressed air - 9/1/93

Fluid Loss During Drilling approximately 1,500 gallons

Water Removed During Development 6,000 gallons

Static Depth to Water 109 feet below M.P.

Pumping Depth to Water ____ feet below M.P.

Pumping Duration 2.5 hours

Yield 40 gpm Date ____

Specific Capacity ____ gpm/ft

Well Purpose Monitoring

Remarks *10-inch diameter steel casing was installed by the Barber Drilling Method to 139.5 ft.
The borehole was drilled to 329 ft by the mud rotary method and the final 30 ft was installed by the reverse rotary method.

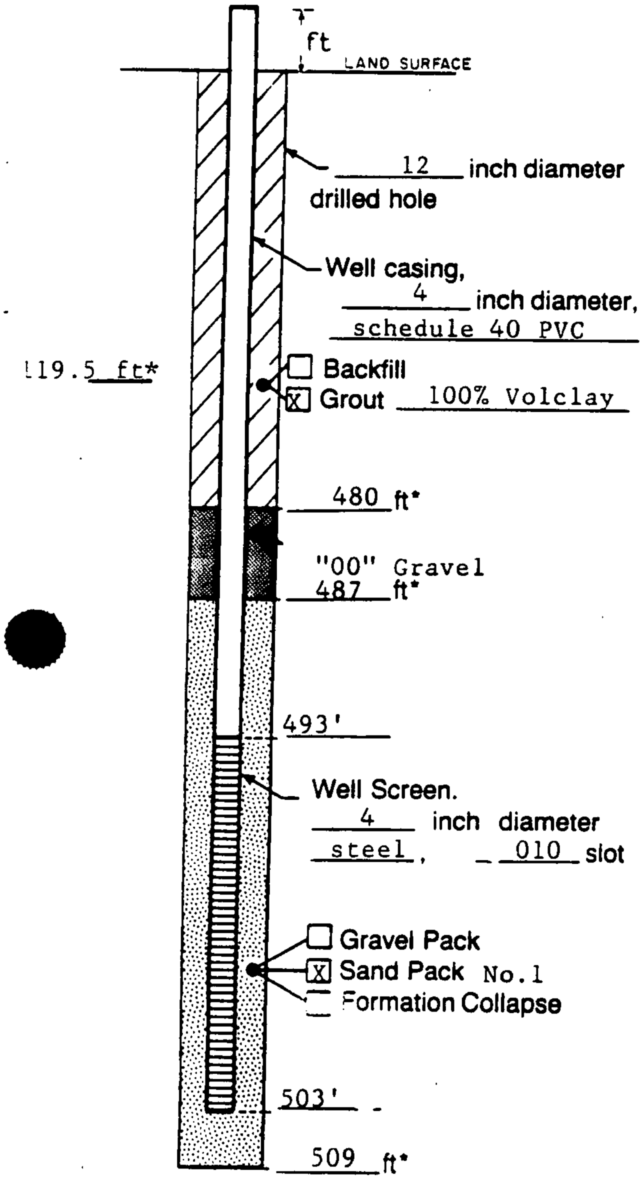
Prepared by Sarah Zagaja

G&M Form 05 12-88

Southprint 89-0978

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB/Syosset Landfill NY0029.008 Well RB-11D

Town/City Syosset, NY

County Nassau State NY

Permit No. ______

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 8/09/93

Drilling Method direct mud rotary; reverse rotary (water only)

Drilling Contractor Delta Well and Pump

Drilling Fluid 0-120 air, 120-473 mud, 473-509 water

Development Technique(s) and Date(s)
Compressed air - 9/1/93

Fluid Loss During Drilling approx. 2,000 gal water gallons

Water Removed During Development 6,000 gallons

Static Depth to Water 109 feet below M.P.

Pumping Depth to Water ______ feet below M.P.

Pumping Duration 1.5 hours

Yield ______ gpm Date ______

Specific Capacity ______ gpm/ft

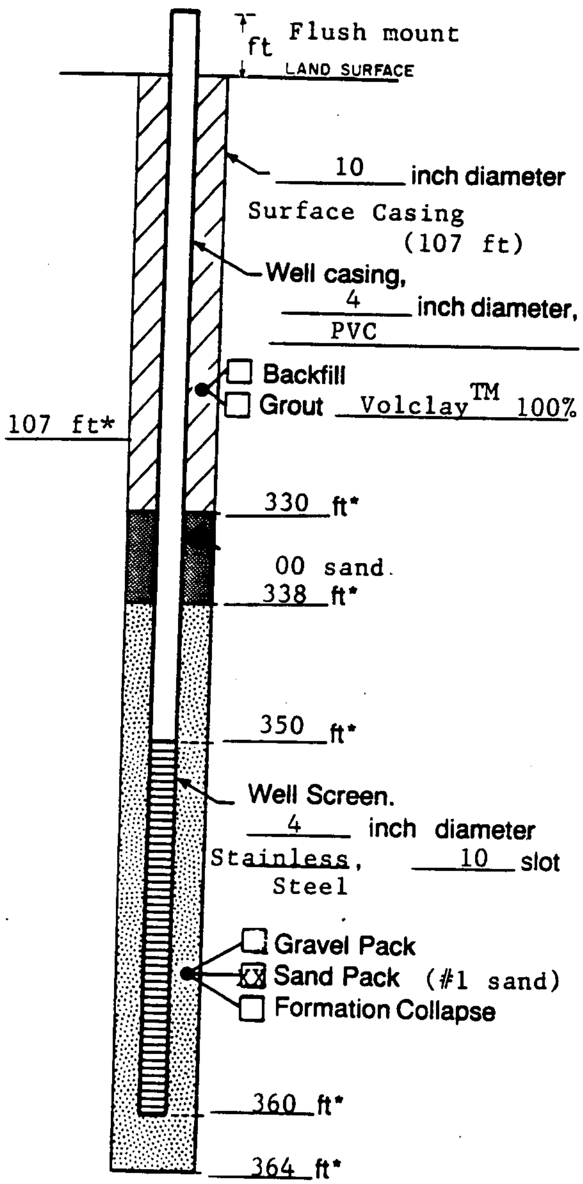
Well Purpose Monitoring

Remarks 6½ bags (100 lbs) of #1 sand
8 5-gal buckets of 00-sand
39 100-lb bags of volclay grout
* A 10-inch diameter steel surface casing was installed by the Barber Drilling Method to 119.5 ft. The mud rotary method was used to install the borehole to 473 ft followed by the reverse rotary method to the final depth.

Prepared by Michael Breault/Sarah Zagaja

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB/Syosset Landfill Well RW-12I

Town/City Syosset

County Nassau State New York

Permit No. ______

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 10/6, 10/7, 1993

Drilling Method H.S.A./Cable Tool/Mud Rotary/Reverse Wate

Drilling Contractor Delta Well & Pump Company, Inc.

Drilling Fluid mud, water (hydrant)

Development Technique(s) and Date(s)
Submersible pump - 10/14/93

Fluid Loss During Drilling 1,800 gallons

Water Removed During Development 7,000 gallons

Static Depth to Water 119.24 feet below M.P.

Pumping Depth to Water ** feet below M.P.

Pumping Duration 1.5 hours

Yield ______ gpm Date 10/14/93

Specific Capacity ______ gpm/ft

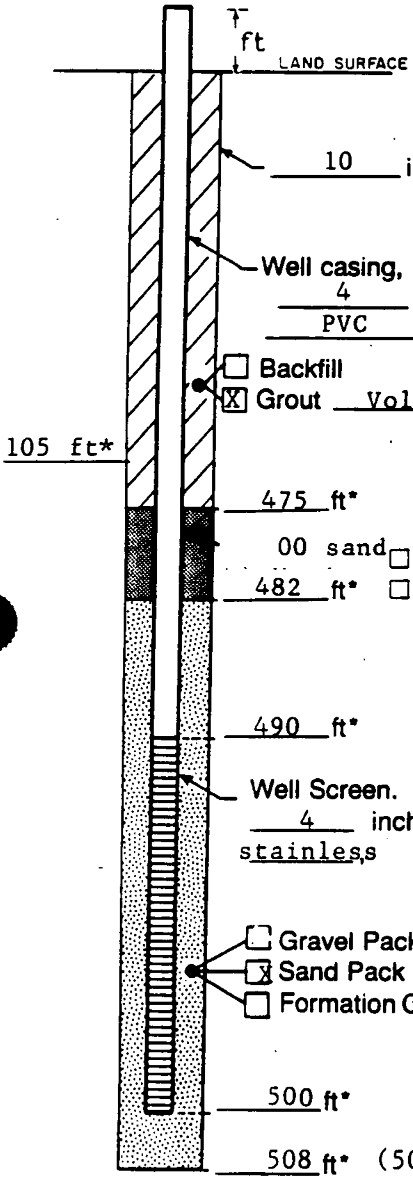
Well Purpose Monitoring

Remarks * 10-inch surface casing was installed to 107 ft by the hollow-stem auger and cable-tool drilling methods. The borehole was then advanced by the mud rotary method followed by the reverse rotary method for the final 30-ft.
** Water depth indicator could not reach the water table during pumping due to tangling with the pump and hose. Turbidity final 0.56 NTUs.

Prepared by David Vines

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



10 inch diameter surface casing

Well casing, 4 inch diameter, PVC

☐ Backfill
☒ Grout Volclay (100%)

475 ft*

00 sand ☐ slurry
482 ft* ☐ pellets

490 ft*

Well Screen. 4 inch diameter stainless 10 slot

☐ Gravel Pack
☒ Sand Pack #1 J. Morie
☐ Formation Collapse

500 ft*

508 ft* (503.9) after collapse

Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project LKB - Syosset Landfill Well RW-12D

Town/City Syosset

County Nassau State New York

Permit No. ______

Land-Surface Elevation and Datum ______ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 9/13, 9/24, 9/27/93

Drilling Method H.S.A./cable tool/mud rotary/reverse rotar

Drilling Contractor Delta Well & Pump

Drilling Fluid mud; water (potable hydrant)

Development Technique(s) and Date(s)
Submersible pump - 10/15/93

Fluid Loss During Drilling 2,100 gallons

Water Removed During Development 7,000 gallons

Static Depth to Water 118.36 feet below M.P.

Pumping Depth to Water ** feet below M.P.

Pumping Duration 1.5 hours

Yield ______ gpm Date 10/15/93

Specific Capacity ______ gpm/ft

Well Purpose Monitoring

Remarks 11 bags sand (#1)
30 gallons of 00 sand
* 10-inch diameter black steel surface casing was installed to 105 ft by the hollow-stem auger and cable-tool drilling methods. The borehole was then advanced by the mud rotary method followed by the reverse rotary method for the final 30 ft.
** Water depth indicator could not reach the water table during pumping due to tangling with the pump and hose
Final turbidity = 24.7 NTUs.

Prepared by David Vines

APPENDIX G

ANALYTICAL RESULTS OF DEVELOPMENT WATER FROM MONITORING WELL PK-10D

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO. C930140/1 01/15/93

Geraghty & Miller, Incorporated
125 East Bethpage Road
Plainview, NY 11803
ATTN: Vincent Glasser

SOURCE OF SAMPLE: Syosset, Project No. NY02908
COLLECTED BY: Client DATE COL'D:01/12/93 RECEIVED:01/12/93

SAMPLE: Wastewater sample, PK-10D-Dev, 1300

ANALYTICAL PARAMETERS		
Chloromethane	ug/L	<1
Bromomethane	ug/L	<1
Dichlordifluomethane	ug/L	<2
Vinyl Chloride	ug/L	<1
Chloroethane	ug/L	<1
Methylene Chloride	ug/L	<1
Trichlorofluomethane	ug/L	<2
1,1 Dichloroethene	ug/L	<1
1,1 Dichloroethane	ug/L	<1
1,2 Dichloroethene	ug/L	<1
Chloroform	ug/L	<1
1,2 Dichloroethane	ug/L	<1
111 Trichloroethane	ug/L	<1
Carbon Tetrachloride	ug/L	<1
Bromodichloromethane	ug/L	<1
1,2 Dichloropropane	ug/L	<1
t 13 Dichloropropene	ug/L	<2
Trichloroethylene	ug/L	<1
Chlorodibromomethane	ug/L	<1
112 Trichloroethane	ug/L	<2
c 13 Dichloropropene	ug/L	<2
2chloroethvinylether	ug/L	<2
Bromoform	ug/L	<2
1122Tetrachloroethan	ug/L	<2
Tetrachloroethene	ug/L	<1

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/L	<1
1,3 Dichlorobenzene	ug/L	<2
1,2 Dichlorobenzene	ug/L	<2
1,4 Dichlorobenzene	ug/L	<2
Benzene	ug/L	<1
Toluene	ug/L	<2
Ethyl Benzene	ug/L	<1
m Xylene	ug/L	<2
o+p Xylene	ug/L	<4
Ammonia as N	mg/L	<0.05
Chloride as Cl	mg/L	15
Alkalinity tot CaCo3	mg/L	16
Hardness as CaC03	mg/L	7.4

cc:

REMARKS:

DIRECTOR ____________________

rn= 561 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC.

ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO. C930140/2 01/15/93

Geraghty & Miller, Incorporated
125 East Bethpage Road
Plainview, NY 11803
ATTN: Vincent Glasser

SOURCE OF SAMPLE: Syosset, Project No. NY02908
COLLECTED BY: Client DATE COL'D:01/12/93 RECEIVED:01/12/93

SAMPLE: Wastewater sample, TB011293

ANALYTICAL PARAMETERS		
Chloromethane	ug/L	<1
Bromomethane	ug/L	<1
Dichlordifluomethane	ug/L	<2
Vinyl Chloride	ug/L	<1
Chloroethane	ug/L	<1
Methylene Chloride	ug/L	<1
Trichlorofluomethane	ug/L	<2
1,1 Dichloroethene	ug/L	<1
1,1 Dichloroethane	ug/L	<1
1,2 Dichloroethene	ug/L	<1
Chloroform	ug/L	<1
1,2 Dichloroethane	ug/L	<1
111 Trichloroethane	ug/L	<1
Carbon Tetrachloride	ug/L	<1
Bromodichloromethane	ug/L	<1
1,2 Dichloropropane	ug/L	<1
t 13 Dichloropropene	ug/L	<2
Trichloroethylene	ug/L	<1
Chlorodibromomethane	ug/L	<1
112 Trichloroethane	ug/L	<2
c 13 Dichloropropene	ug/L	<2
2chloroethvinylether	ug/L	<2
Bromoform	ug/L	<2
1122Tetrachloroethan	ug/L	<2
Tetrachloroethene	ug/L	<1

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/L	<1
1,3 Dichlorobenzene	ug/L	<2
1,2 Dichlorobenzene	ug/L	<2
1,4 Dichlorobenzene	ug/L	<2
Benzene	ug/L	<1
Toluene	ug/L	<2
Ethyl Benzene	ug/L	<1
m Xylene	ug/L	<2
o+p Xylene	ug/L	<4

cc:

REMARKS:

DIRECTOR________________________

rn= 562 NYSDOH ID# 10320

APPENDIX H

WATER SAMPLING LOGS/CHAIN-OF-CUSTODY FORMS

FIRST GROUNDWATER SAMPLING ROUND

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-1 Coded/ Replicate No. MS/MSD Date 11/3/93

Weather overcast 40's Time Sampling Began 1336 Time Sampling Completed 1530

EVACUATION DATA

Description of Measuring Point (MP) TOC.

Height of MP Above/Below Land Surface 0.15 MP Elevation 194.52

Total Sounded Depth of Well Below MP 134.32 Water-Level Elevation 81.16

Held ______ Depth to Water Below MP 113.36 Diameter of Casing 2"

Wet ______ Water Column in Well 20.96 Gallons Pumped/Bailed Prior to Sampling 11 gal.

on: 1400 Gallons per Foot 0.16

off: 1411 Gallons in Well 3.35 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 2" Sub. pump Q= 1 gpm T= 11 min

SAMPLING DATA/FIELD PARAMETERS

Color black/colorless/colorless Odor yes/none/none Appearance v. turbid/clear/clear Temperature 16/16/16 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 280/275/260 pH 6.30/6.10/6.05

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel DV, CH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill, NY0029008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-1D Coded/ Replicate No. ______ Date 11/4/93

Weather sunny 50's Time Sampling Began 940 Time Sampling Completed 1015

EVACUATION DATA

Description of Measuring Point (MP) MP on PVC cap

Height of MP Above/~~Below~~ Land Surface 2.31 MP Elevation 197.36

Total Sounded Depth of Well Below MP 192.00 Water-Level Elevation 81.39

Held ______ Depth to Water Below MP 115.97 Diameter of Casing 4"

Wet ______ Water Column in Well 76.03 Gallons Pumped/Bailed Prior to Sampling 149 gal.

on: 940

Gallons per Foot 0.65

off: 1002

Gallons in Well 49.42 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method perm. sub. pump Q=7 gpm T=22 min

SAMPLING DATA/FIELD PARAMETERS

Color orange/colorless/colorless Odor -/-/- Appearance turbid/sl. turbid/clear Temperature 15.5/17/17 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 1100/1100/1100 pH 5.85/5.75/5.8

Sampling Method and Material 3/4" teflon bailer w/ leader (voc's) Tap discharge (other parameters)

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ______

Sampling Personnel SW, LH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. SY-2R Coded/ Replicate No. ____ Date 11.2.93

Weather Sunny 50's Time Sampling Began 1310 Time Sampling Completed 1450

EVACUATION DATA

Description of Measuring Point (MP) MP on Top of PVC casing

Height of MP Above/~~Below~~ Land Surface 1.95 MP Elevation 187.48

Total Sounded Depth of Well Below MP 150.00 Water-Level Elevation 81.31

Held ____ Depth to Water Below MP 106.17 Diameter of Casing 4"

Wet ____ Water Column in Well 43.83 Gallons Pumped/Bailed Prior to Sampling 86 gal.

on: 1:31

off: 2:29

Gallons per Foot 0.65

Gallons in Well 28.49 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method perm. sub. pump Q = 1.5 gpm T = 58 min

SAMPLING DATA/FIELD PARAMETERS

Color yellow tint/colorless/clear Odor slight/slight/slight Appearance turbid/clear/clear Temperature 14/15/14 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 1050/1150/1000 pH 5.4/5.3/5.35

Sampling Method and Material 3/4" teflon bailer w/ leader (VOCs) sample spigot for others

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill / NY0029008 Page 1 of

Site Location Syosset, New York

Site/Well No. SY-2D Coded/ Replicate No. Date 11/2/93

Weather Sunny 50's Time Sampling Began 1455 Time Sampling Completed 1600

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.18 MP Elevation 186.57

Total Sounded Depth of Well Below MP 215.00 Water-Level Elevation 80.96

Held ____ Depth to Water Below MP 105.61 Diameter of Casing 3"

Wet ____ Water Column in Well 109.39 Gallons Pumped/Bailed Prior to Sampling 122 gal

on: 3:10 Gallons per Foot 0.37

off: 341 Gallons in Well 40.48 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method sub. pump Q = 4 gpm T = 31 min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless Odor none/none/none Appearance clear/clear/clear Temperature 15.5/17/17 °C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 1000/470/475 pH 6.15/6.50/6.50

Sampling Method and Material teflon bailer

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill / NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-3 Coded/ Replicate No. ____ Date 11.2.93

Weather 50's sunny Time Sampling Began 945 Time Sampling Completed 1210

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.50 MP Elevation 191.38

Total Sounded Depth of Well Below MP 145.28 Water-Level Elevation 81.35

Held ____ Depth to Water Below MP 110.03 Diameter of Casing 2"

Wet ____ Water Column in Well 35.25 Gallons Pumped/Bailed Prior to Sampling 17 gal.

Gallons per Foot 0.16

Gallons in Well 5.64 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method Teflon bailer w/ leader

SAMPLING DATA/FIELD PARAMETERS

Color black/black/black Odor present/present/present Appearance very turbid/very turbid/very turbid Temperature 10/12/16.5/16 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 900/920/1300/1310 pH 6.8/6.8/6.8/6.8

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW/BV/LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill / NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. SY-3D Coded/Replicate No. ____ Date 11/2/93

Weather sunny 50's Time Sampling Began 800 Time Sampling Completed 930

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation 194.74

Total Sounded Depth of Well Below MP 197.35 Water-Level Elevation 80.69

Held ____ Depth to Water Below MP 114.05 Diameter of Casing 3"

Wet ____ Water Column in Well 83.30 Gallons Pumped/Bailed Prior to Sampling 93 gal

on: 8:21 Gallons per Foot 0.37

off: 8:45 Gallons in Well 30.82 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 2" sub. pump Q = 4 gpm T = 24 min

SAMPLING DATA/FIELD PARAMETERS

Color yellow tint / yellow tint / yellow tint Odor slight/slight/slight Appearance sl. turbid / sl. turbid / sl. turbid Temperature 16/17/17 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 2400/2400/2300 pH 6.8/6.8/7.0

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel * Field blank done before this well *

GW/ DV/ LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill / NY0029.08 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-3DD Coded/ Replicate No. ______ Date 11/1/93

Weather overcast 40's Time Sampling Began 1335 Time Sampling Completed 1520

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 541.83 Water-Level Elevation ______

Held ______ Depth to Water Below MP 113.99 Diameter of Casing 2"

Wet ______ Water Column in Well 427.84 Gallons Pumped/Bailed Prior to Sampling 206 gal.

on: 145

off: 2:37

Gallons per Foot 0.16

Gallons in Well 68.45 Sampling Pump Intake Setting (feet below land surface) ~150

Evacuation Method 2" sub. pump Q=4 gpm T=52 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear Odor none/none/none Appearance clear/clear/clear Temperature 15/15/14 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 18/18/33 pH 5.6/5.8/5.9

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks *field blank done prior to SY3DD and after SY-9

Sampling Personnel ______

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-4 Coded/ Replicate No. ______ Date 11·2·93

Weather Clear 45 Time Sampling Began 8:40 Time Sampling Completed 1205

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/~~Below~~ Land Surface 0.20 MP Elevation 193.32

Total Sounded Depth of Well Below MP 150.00 Water-Level Elevation 81.87

Held ______ Depth to Water Below MP 111.45 Diameter of Casing 2"

Wet ______ Water Column in Well 38.55 Gallons Pumped/Bailed Prior to Sampling 19 gal

Gallons per Foot 0.16

Gallons in Well 6.17 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method teflon bailer

SAMPLING DATA/FIELD PARAMETERS

Color black/brown/brown Odor slight/slight/slight Appearance turbid/turbid/turbid Temperature 15/15/15.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 1250/1300/1250 pH 7.1/6.45/6.56

Sampling Method and Material teflon bailer

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill/NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-6 Coded/ Replicate No. ______ Date attempted 11/1/93 done 11/5/93

Weather overcast Time Sampling Began 800 Time Sampling Completed 1300

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.10 MP Elevation 185.85

Total Sounded Depth of Well Below MP 138.00 Water-Level Elevation 81.53

Held ______ Depth to Water Below MP 104.32 Diameter of Casing 2"

Wet ______ Water Column in Well 33.68 Gallons Pumped/Bailed Prior to Sampling 17 gal.

Gallons per Foot 0.16

Gallons in Well 5.39 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color black/brown/lt. brown/lt. brown Odor -/-/-/- Appearance turbid/turbid/turbid/sl. turbid Temperature 15.5/15/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 85/300/375/370 pH 8.25/6.63/6.24/6.27

Sampling Method and Material 3/4" teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COL		

Remarks ______

Sampling Personnel DV, GW, LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-6D Coded/ Replicate No. ______ Date 11/1/93

Weather overcast 50's Time Sampling Began 0830 Time Sampling Completed 1125

EVACUATION DATA

Description of Measuring Point (MP) TOC (mp)

Height of MP ~~Above~~/Below Land Surface 0.30 MP Elevation 185.60

Total Sounded Depth of Well Below MP 205.00 Water-Level Elevation 81.55

Held ______ Depth to Water Below MP 104.05 Diameter of Casing 4"

Wet ______ Water Column in Well 100.95 Gallons Pumped/Bailed Prior to Sampling 197 gal.

on: 848
off: 856

Gallons per Foot 0.65

on₂: 959

Gallons in Well 65.62 Sampling Pump Intake Setting (feet below land surface) ______

off₂: 1018

Evacuation Method permanent submersible pump Q=8gpm T=27 min.

SAMPLING DATA/FIELD PARAMETERS

Color black/grey/clear Odor yes/yes/yes Appearance v.turbid/turbid/sl. turbid Temperature 13/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 415/500/390 pH 5.70/5.4/5.50

Sampling Method and Material 3/4" teflon bailer w/ leader (voc) Tap Discharge other

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-7 Coded/ Replicate No. ______ Date 11.4.93

Weather sunny 50's Time Sampling Began 1530 Time Sampling Completed 1610

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP ~~Above~~/Below Land Surface 0.25 MP Elevation 199.63

Total Sounded Depth of Well Below MP 139.40 Water-Level Elevation 83.92

Held ______ Depth to Water Below MP 115.71 Diameter of Casing 2"

Wet ______ Water Column in Well 23.69 Gallons Pumped/Bailed Prior to Sampling 12 gal

Gallons per Foot 0.16

Gallons in Well 3.80 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 2" PVC Bailer

SAMPLING DATA/FIELD PARAMETERS

Color black/black/black Odor yes/yes/yes Appearance turbid/turbid/turbid Temperature 15/15.5/15.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 650/1200/1150 pH 5.90/6.00/5.95

Sampling Method and Material 3/4" teflon bailer w/teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel * field blank done before sampling *
GW/DV/LH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-8 Coded/ Replicate No. ____ Date 11.4.93

Weather 55° sunny Time Sampling Began 1030 Time Sampling Completed 1100

EVACUATION DATA

Description of Measuring Point (MP) MP on PVC casing

Height of MP Above/~~Below~~ Land Surface 2.25 MP Elevation 195.84

Total Sounded Depth of Well Below MP 137.00 Water-Level Elevation 81.79

Held ____ Depth to Water Below MP 114.05 Diameter of Casing 4"

Wet ____ Water Column in Well 22.95 Gallons Pumped/Bailed Prior to Sampling 45 gallons

on: 1040
off: 10:47

Gallons per Foot 0.65

Gallons in Well 14.92 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method perm. sub pump Q= 7gpm T= 7 min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless Odor present/yes/yes Appearance clear/clear/clear Temperature 16/16/16 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 290/300/295 pH 5.55/5.50/5.55

Sampling Method and Material teflon bailer w/ leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel DV, LH

WELL CASING VOLUMES				
GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-9 Coded/ Replicate No. ______ Date 11/1/93

Weather overcast 51 Time Sampling Began 800 Time Sampling Completed 935

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP ~~Above~~/Below Land Surface 0.70 MP Elevation 199.41

Total Sounded Depth of Well Below MP 118.60 Water-Level Elevation 82.64

Held ______ Depth to Water Below MP 116.77 Diameter of Casing 4"

Wet ______ Water Column in Well 1.83 ~~Gallons Pumped~~/Bailed Prior to Sampling 4 gal

Gallons per Foot 0.65

Gallons in Well 1.19 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method Teflon bailer w/ Teflon leader

SAMPLING DATA/FIELD PARAMETERS

Color grey black / grey black / grey black Odor strong/strong/strong Appearance turbid/turbid/turbid Temperature 13.5/14/14 °C

Other (specific ion; OVA; HNU; etc.) OVA: below backround

Specific Conductance umhos/cm 310/410/420 pH 5.70/5.8/6

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel DV, OW, LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 — Page 1 of 1

Site Location Syosset, NY

Site/Well No. PK-10S — Coded/Replicate No. ____ — Date 11·4·93

Weather overcast 50's — Time Sampling Began 1120 — Time Sampling Completed 1230

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ — MP Elevation ____

Total Sounded Depth of Well Below MP 149.87 — Water-Level Elevation ____

Held ____ Depth to Water Below MP 108.41 — Diameter of Casing 4"

Wet ____ Water Column in Well 41.46 — Gallons Pumped/Bailed Prior to Sampling 81 gal.

on: 1138

Gallons per Foot 0.65

off: 1147

Gallons in Well 26.95 — Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method Sub. pump Q= 9gpm T= 9 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/yellow/sl. yellow tint/slight yellow tint — Odor none/none/none/none — Appearance clear/~~turbid~~/sl. turbid/sl. turbid — Temperature 14/14/13.5/13.5 ~~°F~~/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 185/205/205/190 — pH 5.33/5.41/5.40/5.40

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. LKB /Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, New York

Site/Well No. PK 10I Coded/ Replicate No. Rep 2 Date 11.4.93

Weather clear 55° Time Sampling Began 1:15 Time Sampling Completed 2:25

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 362.12 Water-Level Elevation ______

Held ______ Depth to Water Below MP 107.80 Diameter of Casing 4"

Wet ______ Water Column in Well 254.32 Gallons Pumped/Bailed Prior to Sampling 496 gallons

on: 1:31 Gallons per Foot 0.65

off: 2:13 Gallons in Well 165.31 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q= 12 gpm T= 42 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear/clear Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 15/16/16/15 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 1450/1600/1700/1500 pH 6.15/6.15/6.21/6.36

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW, DM

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, New York

Site/Well No. PK-10D Coded/ Replicate No. MS/MSD Date 11.4.93

Weather Sunny 40 Time Sampling Began 801 Time Sampling Completed 1122

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 499.13 Water-Level Elevation ______

Held ______ Depth to Water Below MP 108.41 Diameter of Casing 4"

Wet ______ Water Column in Well 390.72 Gallons Pumped/Bailed Prior to Sampling 762 gallons

on: 9:01
off: 10:00

Gallons per Foot 0.65

Gallons in Well 253.97 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q=13gpm T=59 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/yellowish/clear Odor none/none/none Appearance slightly turbid/sl. turbid/sl. turbid Temperature 13.5/13/13.5 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 125/125/105/105 pH 5.8/5.82/5.5/5.5

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative

Remarks *field blank taken after sampling 10D*

Sampling Personnel GW/DV/LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. RB 11S Coded/ Replicate No. ______ Date 11·3·94

Weather Overcast· 40 Time Sampling Began 155 Time Sampling Completed 2:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 144.50 Water-Level Elevation ______

Held ______ Depth to Water Below MP 109.12 Diameter of Casing 4"

Wet ______ Water Column in Well 35.38 Gallons Pumped/Bailed Prior to Sampling 69 gal.

on: 208

off: 2:14

Gallons per Foot 0.65

Gallons in Well 23.00 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q= 12gpm T= 6min

SAMPLING DATA/FIELD PARAMETERS

Color yellow tint/yellow tint/slight tint/slight tint Odor none/none/none/none Appearance turbid/moderately turbid/slightly turbid/sl. turbid Temperature 14/14/14/14 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 75/65/65/65 pH 5.6/5.4/5.41/5.42

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel LH, GW, DV

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. RB-11I ~~Coded/~~ Replicate No. Rep 1 Date 11/3/93

Weather overcast 40° Time Sampling Began 1015 Time Sampling Completed 1145

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation ____

Total Sounded Depth of Well Below MP 358.06 Water-Level Elevation ____

Held ____ Depth to Water Below MP 110.38 Diameter of Casing 4"

Wet ____ Water Column in Well 247.68 Gallons Pumped/Bailed Prior to Sampling 483 gal.

on: 1025
off: 1106

Gallons per Foot 0.65

Gallons in Well 160.99 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 4" submersible pump Q = 12 gpm T = 41 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear Odor none/none/none Appearance clear/clear/clear Temperature 13/12/12 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 230/225/225 pH 5.4/4.79/4.78

Sampling Method and Material teflon bailer w/ leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW/DN/LH

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. RB-11D Coded/ Replicate No. ______ Date 11.3.93

Weather overcast 50's Time Sampling Began 800 Time Sampling Completed 1010

EVACUATION DATA

Description of Measuring Point (MP) TOP of PVC casing

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 503.50 Water-Level Elevation ______

Held ______ Depth to Water Below MP 111.97 Diameter of Casing 4"

Wet ______ Water Column in Well 391.53 Gallons Pumped/Bailed Prior to Sampling 764 gal.

on: 826
off: 930

Gallons per Foot 0.65

Gallons in Well 254.50 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q= 12gpm T= 64min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless Odor none/none/none Appearance clear/clear/clear Temperature 13/12.5/13 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 15/15/15 pH 5.10/5.3/5.7

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks *COM split samples on this well

Sampling Personnel DV, GW, LH

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029008 Page 1 of

Site Location Syosset, NY

Site/Well No. RW-12 I Coded/ Replicate No. Rep 3 Date 11.5.93

Weather rain 60's Time Sampling Began 1030 Time Sampling Completed 1210

EVACUATION DATA

Description of Measuring Point (MP) Top of PVC casing

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 361.07 Water-Level Elevation ______

Held ______ Depth to Water Below MP 117.84 Diameter of Casing 4"

Wet ______ Water Column in Well 243.23 Gallons Pumped/Bailed Prior to Sampling 475 gal

on: 1050
off: 1142

Gallons per Foot 0.65

Gallons in Well 158.10 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q= 9gpm t=52 min

SAMPLING DATA/FIELD PARAMETERS

Color colorless / yellow tint / colorless / colorless Odor NONE -/-/-/- Appearance clear / turbid / clear / clear Temperature 15.5/15/15/15 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 500/500/500/500 pH 6.35/6.2/6.2/6.4

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks * field blank taken before sampling 12I + after RW-12D *

Sampling Personnel LH, DV, GW

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Land fill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. RW-12D Coded/Replicate No. ______ Date 11.5.93

Weather rainy 60's Time Sampling Began 800 Time Sampling Completed 1045

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 500.74 Water-Level Elevation ______

Held ______ Depth to Water Below MP 117.98 Diameter of Casing 4"

Wet ______ Water Column in Well 382.76 Gallons Pumped/Bailed Prior to Sampling 747 gallons

on: 915
off: 1017

Gallons per Foot 0.65

Gallons in Well 248.80 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" sub. pump Q= 12gpm T= 63 min

SAMPLING DATA/FIELD PARAMETERS

Color 10 10YR 6/3 / 10 10YR 6/3 / 10 10YR 6/3 / 10 10YR 6/3 Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 15/15/14/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 420/400/425/440 pH 5.9/5.7/5.7/5.7

Sampling Method and Material Teflon bailer w/ Teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks *field blank done after sampling 12D and before 12I

Sampling Personnel LH, GW, DV

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number 46/Syosset Landfill N/0029008
Project Location Syosset, New York
Laboratory ITA Labs Inc.
Sampler(s)/Affiliation G. Williams
I. Hendricks

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml. vials VOCs 524.2 (w/HCl)	*Dissolved Metals* 1 Liter Plastic (w/HNO3)	1 Liter Plastic Total Metals (w/HNO3)	1 Liter Plastic Wet Chemistry (none)	500 ml. Plastic Ammonia (w/H2SO4)					TOTAL
TB112993	L	11/29/93		3									3
FB112993	L	11/29/93		3	1	1	1	1					7
SY-1	L	11/29/93		3	1	1	1	1					7
SY-6L	L	11/29/93		3	1	1	1	1					7
SY-SHL	L	11/29/93		3	1	1	1	1					7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 31

Relinquished by: [signature] Hendricks Organization: Geraghty + Miller, Inc.
Received by: Organization: Date 11/29/93 Time 5:00 pm. Seal Intact? Yes No N/A

Relinquished by: Organization:
Received by: Organization: Date / / Time Seal Intact? Yes No N/A

Special Instructions/Remarks:
* Dissolved Metals filtered in the field through 0.45 µm filters *

Delivery Method: ☐ In Person ☐ Common Carrier SPECIFY ☐ Lab Courier ☐ Other SPECIFY

G&M Form 09.1.90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 0616

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number: Syosset Landfill | NY0029028

Project Location: Syosset, New York

Laboratory: IEA Lab Inc.

Sampler(s)/Affiliation: G. Williams, D. McGregor, L. Hendricks

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml glass vials VOCs 524.2 (w/HCl)	1 liter plastic * Dissolved Metals * (w/HNO3)	1 liter plastic Total Metals (w/HNO3)	1 liter plastic Wet Chemistry (UNP)	500 ml plastic Ammonia (w/H2SO4)					TOTAL
SW-1 **	L	11-30-93		9	3	3	3	3					21
RB-11S	L	11-30-93		3	1	1	1	1					7
RB-11I	L	11-30-93		3	1	1	1	1					7
RB-11d	L	11-30-93		3	1	1	1	1					7
TB 113093	L	11-30-93		3									3
FB113093	L	11-30-93		3	1	1							5
Rep 1	L	11-30-93		3	1	1	1	1					7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 57

Relinquished by: [illegible signature] Organization: Geraghty & Miller
Received by: ____ Organization: ____ Date 11/30/93 Time ____ Seal Intact? Yes No N/A

Relinquished by: ____ Organization: ____
Received by: ____ Organization: ____ Date __/__/__ Time ____ Seal Intact? Yes No N/A

Special Instructions/Remarks:
** Please use this sample for matrix spike / matrix spike duplicate * *
Dissolved Metals were field filtered through 0.45 micron filters.

Delivery Method: ☐ In Person ☐ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

G&M Form 09-1.90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. ______

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number: Syosset Landfill NY0029008

Project Location: Syosset, NY

Laboratory: TEA, Labs Inc.

Sampler(s)/Affiliation: P. McGregor / G. Williams

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	1-liter plastic Dissolved Metals (HNO_3)	1-liter plastic Total Metals Hardness (HNO_3)	1-liter plastic Wet chemistry	1-500ml plastic Ammonia (H_2SO_4)						TOTAL
PK-10I	L	12-1-93		1	1	1	1						4
Rep-2	L	↓		1	1	1	1						4
* PK-10D	L	↓		1	1	1	1						4
* PK-10D Matrix Spike	L	↓		1	1	1	1						4
* PK-10D Matrix Spike Dup	L	↓		1	1	1	1						4

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 20

Relinquished by: Paul McGregor	Organization: Geraghty & Miller	Date 12/1/93 Time 6:15pm	Seal Intact? Yes No N/A
Received by:	Organization:		
Relinquished by:	Organization:	Date / / Time	Seal Intact? Yes No N/A
Received by:	Organization:		

Special Instructions/Remarks:

Dissolved Metals filtered through 0.45 um filter.

* PLEASE ANALYSE MATRIX SPIKE AND MATRIX SPIKE DUPLICATE from THESE SAMPLES

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

G&M Form 09 1-90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. ______

CHAIN-OF-CUSTODY RECORD

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Project Number: Syosset Landfill NY0029008
Project Location: Syosset, NY
Laboratory: IEA, Labs Inc.
Sampler(s)/Affiliation: D. McGregor
G. Williams

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	1-liter plastic Dissolved metals (HNO3)	1-liter plastic Total metals + Hardness (HNO3)	1-liter plastic Wet Chemistry	1-500ml plastic Ammonia (H2SO4)	1-40ml vial VOA VOC 524.2 (HCl)					TOTAL
FB12-1-93	L	12-1-93		1	1			3					5
PK-10S	L	12-1-93		1	1	1	1	3					7
SY-8	L	12-1-93		1	1	1	1	3					7
SY-1D	L	12-1-93		1	1	1	1	3					7
TB12-1-93	L	12-1-93						3					3
PK-10I	L	↓						3					3
Rep-2	L							3					3
PK-10D	L							3					3
PK-10D matrix spike	L							3					3
PK-10D matrix spike dup	L	↓						3					3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 44

Relinquished by: Dick McGregor	Organization: Geraghty & Miller	Date 12/1/93 Time 6:15 pm	Seal Intact? Yes No N/A
Received by:	Organization:		
Relinquished by:	Organization:	Date / / Time	Seal Intact? Yes No N/A
Received by:	Organization:		

Special Instructions/Remarks: Dissolved metals filtered through a 0.45um filter

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No.________

CHAIN-OF-CUSTODY RECORD

Page____ of 1

Project Number: Sunset Landfill NY0029.008

Project Location: Sunset, NY

Laboratory: TEA Lab, Inc. (Monroe)

Sampler(s)/Affiliation: Derek McGregor
Gary Williams

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	1-liter plastic Dissolved metals (HNO_3)	1-liter plastic total metals/hardness (HNO_3)	1-liter plastic Wet Chemistry	1-500ml plastic Ammonia (H_2SO_4)	1-40ml vial VOA VOCs 524.2 (HCl)					TOTAL
FB 12-2-93	L	12-2-93		1	1			3					5
RW-12 I	L	12-2-93		1	1	1	1	3					7
RW-12 D	L	12-2-93		1	1	1	1	3					7
Rep-3	L	12-2-93		1	1	1	1	3					7
SY-6	L	12-2-93		1	1	1	1	3					7
SY-7	L	12-2-93		1	1	1	1	3					7
TB 12-2-93	L	12-2-93						3					3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 43

Relinquished by: Derek McGregor Organization: Geraghty & Miller
Received by: ________ Organization: ________ Date 12/2/93 Time 6:00 pm
Seal Intact? Yes No N/A

Relinquished by: ________ Organization: ________
Received by: ________ Organization: ________ Date / / Time ________
Seal Intact? Yes No N/A

Special Instructions/Remarks: Dissolved metals filtered through 0.45 um filters

Delivery Method: ☐ In Person ☐ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

G&M Form 09 1-90

SECOND GROUNDWATER SAMPLING ROUND

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, New York

Site/Well No. SY-1 Coded/ Replicate No. MS/MSD Date 11/30/93

Weather clear, 40's Time Sampling Began 2:20 Time Sampling Completed 4:20

EVACUATION DATA

Description of Measuring Point (MP) T.O.C.

Height of MP Above/Below Land Surface 0.15 MP Elevation 194.52

Total Sounded Depth of Well Below MP 134.30 Water-Level Elevation 81.03

Held ____ Depth to Water Below MP 113.49 Diameter of Casing 2"

Wet ____ Water Column in Well 20.81 Gallons Pumped/Bailed Prior to Sampling 10 gallons

on: 2:50 Gallons per Foot 0.16

off: 3:00 Gallons in Well 3.33 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 2" sub. pump Q=1gpm T=10 min

SAMPLING DATA/FIELD PARAMETERS

Color green tint/clear/clear/clear Odor present/present/slight/slight Appearance mildly turbid/clear/clear/clear Temperature 14/15/15.5/16/16 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 270/270/260/260/260 pH 6.6/6.1/5.9/5.9/6.0

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See C.O.C.		

Remarks ____

Sampling Personnel G.W/L.H

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-1D Coded/Replicate No. ______ Date 12/1/93

Weather overcast 35° Time Sampling Began 4.10 Time Sampling Completed 5:01

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.31 MP Elevation 197.36

Total Sounded Depth of Well Below MP 192.00 Water-Level Elevation 81.28

Held ______ Depth to Water Below MP 116.08 Diameter of Casing 4"

Wet ______ Water Column in Well 75.92 Gallons Pumped/Bailed Prior to Sampling 148.04

On: 4.15
Gallons per Foot 0.65

Off: 4:45
Gallons in Well 49.34 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method dedicated sub. pump Q=5 gpm T=30 min.

SAMPLING DATA/FIELD PARAMETERS

Color none/same/same/same Odor slight/slight/slight/slight Appearance sl. turbid/sl. turbid/sl. turbid/sl. turbid Temperature 16/16/17/17 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 105/100/105/105 pH 5.9/5.8/5.8/5.8

Sampling Method and Material ______

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel G.W / D.McG

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-2R Coded/ Replicate No. ______ Date 12.3.93

Weather clear 40's Time Sampling Began 10:25 Time Sampling Completed 11:30

EVACUATION DATA

Description of Measuring Point (MP) T.O.C.

Height of MP Above/Below Land Surface 1.95 MP Elevation 187.48

Total Sounded Depth of Well Below MP 150.00 Water-Level Elevation 81.25

Held ______ Depth to Water Below MP 106.23 Diameter of Casing 4"

Wet ______ Water Column in Well 43.77 Gallons Pumped/Bailed Prior to Sampling 85.35

on: 10:38 Gallons per Foot 0.65

off: 11:21 Gallons in Well 28.45 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method dedicated 4" sub. pump Q=2gpm T=43 min. well surging

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear Odor none/none/none Appearance clear/clear/clear Temperature 15/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 900/1100/1100 pH 5.2/5.2/5.2

Sampling Method and Material ______

Constituents Sampled	Container Description From Lab ___ or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW, D.McG.

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill, NY0329.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-2D Coded/ Replicate No. ______ Date 12.3.93

Weather clear 45° Time Sampling Began 10:25am Time Sampling Completed 1:30pm

EVACUATION DATA

Description of Measuring Point (MP) TOC.

Height of MP Above/Below Land Surface 2.18 MP Elevation 186.57

Total Sounded Depth of Well Below MP 201.48 Water-Level Elevation ______

Held ______ Depth to Water Below MP 105.64 Diameter of Casing 3"

Wet ______ Water Column in Well 95.84 Gallons Pumped/Bailed Prior to Sampling 106.38

on: 11:58am Gallons per Foot 0.37

off: 12:51 Gallons in Well 35.46 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 2" sub. pump. Q = 2gpm T = 53
xset at 120 - dry - reset 130ft pmp.

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless/colorless Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 16/17/17/17 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 430/445/410/425 pH 6.4/6.5/6.6/6.6

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See C.O.C		

Remarks ______

Sampling Personnel GW, DMcG

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-3 Coded/ Replicate No. ____ Date 12.3.93

Weather Clear 45 Time Sampling Began 3:20 Time Sampling Completed 5:05

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.50 MP Elevation 191.38

Total Sounded Depth of Well Below MP 145.20 Water-Level Elevation 81.25

Held ____ Depth to Water Below MP 110.13 Diameter of Casing 2"

Wet ____ Water Column in Well 35.07 Gallons Pumped/Bailed Prior to Sampling 16.83

Gallons per Foot 0.16

Gallons in Well 5.61 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method Teflon bailer w/ teflon leader

SAMPLING DATA/FIELD PARAMETERS

Color greentint/greentint/grey/grey Odor slight/slight/slight/slight Appearance clear/sl. turbid/turbid/sl. turbid Temperature 17.5/17.5/17.5/17.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 1150/1100/1400/1400 pH 7.0/6.9/6.8/6.8

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See C.O.C.		

Remarks ____

Sampling Personnel G.W. DMcG.

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. SY-3D Coded/ Replicate No. ____ Date 12·3·93

Weather overcast 45° Time Sampling Began 2:20 Time Sampling Completed 3:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation 194.74

Total Sounded Depth of Well Below MP 197.35 Water-Level Elevation 80.62

Held ____ Depth to Water Below MP 114.12 Diameter of Casing 3"

Wet ____ Water Column in Well 83.23 Gallons Pumped/Bailed Prior to Sampling 92.38

on: 2:31
off: 3:01

Gallons per Foot 0.37

Gallons in Well 30.79 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 2" sub. pump Q=3gpm T=31 min

SAMPLING DATA/FIELD PARAMETERS

Color green tint/green tint/green tint/green tint Odor slight/slight/slight/slight Appearance clear/clear/clear/clear Temperature 19/20/19/19 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 2550/2600/2600/2600 pH 7.0/6.9/7.0/7.1

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
see COC		

Remarks * field blank taken before SY-3D was sampled

Sampling Personnel GW, DMCG

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. SY-3DD Coded/Replicate No. ____ Date 11/29/93

Weather Clear, 40's Time Sampling Began 2:15 Time Sampling Completed 4:10

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation ____

Total Sounded Depth of Well Below MP 541.77 Water-Level Elevation ____

Held ____ Depth to Water Below MP 113.97 Diameter of Casing 2"

Wet ____ Water Column in Well 427.80 Gallons Pumped/Bailed Prior to Sampling 205 gallons

on: 2:32 Gallons per Foot 0.16

off: 3:41 Gallons in Well 68.45 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 2" sub. pump Q=3 gpm T=69 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear/clear Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 19/16/15/15/15 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 28/20/20/20 pH 5.7/5.8/5.8/5.8

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel LH BW

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-4 Coded/ Replicate No. ______ Date 12-3-93

Weather cloudy 45° Time Sampling Began 7:50 Time Sampling Completed 10:10

EVACUATION DATA

Description of Measuring Point (MP) ______

Height of MP Above/Below Land Surface 0.20 MP Elevation 193.32

Total Sounded Depth of Well Below MP 150.55 Water-Level Elevation 81.71

Held ______ Depth to Water Below MP 111.61 Diameter of Casing 2"

Wet ______ Water Column in Well 38.94 Gallons Pumped/Bailed Prior to Sampling 18.60 gal

Gallons per Foot 0.16

Gallons in Well 6.20 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method Teflon bailer w/ teflon leader

SAMPLING DATA/FIELD PARAMETERS

Color dk grey/lt. grey/lt. grey/light brown Odor moderate/moderate/moderate/moderate Appearance turbid/turbid/turbid/turbid Temperature 15/15/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 1100/1150/1150/1100 pH 7.5/7.1/7.0/7.0

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ______

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page___ of___

Site Location Syosset, NY

Site/Well No. SY-6 Coded/ Replicate No. ___ Date 12.2.93

Weather overcast 40's Time Sampling Began 10:10 Time Sampling Completed 12:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.10 MP Elevation 185.85

Total Sounded Depth of Well Below MP 138.00 Water-Level Elevation 81.36

Held ___ Depth to Water Below MP 104.49 Diameter of Casing 2"

Wet ___ Water Column in Well 33.51 Gallons Pumped/Bailed Prior to Sampling 16.08

Gallons per Foot 0.16

Gallons in Well 5.36 Sampling Pump Intake Setting (feet below land surface) ___

Evacuation Method disp. bailer Q= – T= –

SAMPLING DATA/FIELD PARAMETERS

Color brown/brown/brown tint/brown tint Odor slight/slight/slight/slight Appearance turbid/turbid/sl. turbid/sl. turbid Temperature 14/14/14.5/14 °C

Other (specific ion; OVA; HNU; etc.) ___

Specific Conductance umhos/cm 285/350/360/360 pH 7.35/6.95/6.7/6.65/~~6.65~~

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
see COC		

Remarks ___

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.8 — Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-6D — Coded/ Replicate No. ____ — Date 11-29-93

Weather Clear 50's — Time Sampling Began 11:00 — Time Sampling Completed 1:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.30 — MP Elevation 185.60

Total Sounded Depth of Well Below MP 205.00 — Water-Level Elevation 81.12

Held ____ Depth to Water Below MP 104.48 — Diameter of Casing 4"

Wet ____ Water Column in Well 100.52 — Gallons Pumped/Bailed Prior to Sampling 196 gal.

on: 11:20
off: 12:00

Gallons per Foot 0.65

Gallons in Well 65.30 — Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method perm. pump Q=5gpm T=40min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear/clear Odor slight/slight/slight/slight Appearance clear/clear/clear/clear Temperature 15/15.5/15.5/16 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 275/310/355/355 pH 6.1/5.9/5.7/5.7

Sampling Method and Material ____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks * field blank taken prior to sampling SY-6D

Sampling Personnel ____

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-7 Coded/ Replicate No. ______ Date 12·2·93

Weather overcast 40's Time Sampling Began 2:30 Time Sampling Completed 4:00

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.25 MP Elevation 199.63

Total Sounded Depth of Well Below MP 127.49 Water-Level Elevation 84 –

Held ______ Depth to Water Below MP 115.63 Diameter of Casing 2"

Wet ______ Water Column in Well 11.86 Gallons Pumped/Bailed Prior to Sampling 5.69

Gallons per Foot 0.16

Gallons in Well 1.89 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 1" PVC bailer

SAMPLING DATA/FIELD PARAMETERS

Color black/black/black Odor slight/slight/slight Appearance turbid/turbid/turbid Temperature 15/15/15.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 1250/1300/1300 pH 6.1/6.1/6.2

Sampling Method and Material 3/4" teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW/ D. McG

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. SY-8 Coded/ Replicate No. ______ Date 12·1·93

Weather overcast 50 Time Sampling Began 3:05 Time Sampling Completed 4:06

EVACUATION DATA

Description of Measuring Point (MP) MP on PVC Cap

Height of MP Above/Below Land Surface 2.25 MP Elevation 195.84

Total Sounded Depth of Well Below MP 137.00 Water-Level Elevation 81.67

Held ______ Depth to Water Below MP 114.17 Diameter of Casing 4"

Wet ______ Water Column in Well 22.83 Gallons Pumped/Bailed Prior to Sampling 44.49

on: 3:16 Gallons per Foot 0.65

off: 3:23 Gallons in Well 14.83 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method ded. sub. pump Q = 7 gpm T = 7 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear Odor slight/slight/slight Appearance clear/clear/clear Temperature 15/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 295/295/295 pH 5.6/5.6/5.6

Sampling Method and Material sample spigot except for VOC (teflon bailer)

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW, DM CG

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. SY-9 Coded/ Replicate No. ____ Date 11/29/93

Weather Clear, 40's Time Sampling Began 9:30 Time Sampling Completed 10:40

EVACUATION DATA

Description of Measuring Point (MP) T.O.C.

Height of MP Above/Below Land Surface 0.70 MP Elevation 199.41

Total Sounded Depth of Well Below MP 118.50 Water-Level Elevation 82.41

Held ____ Depth to Water Below MP 117.00 Diameter of Casing 4"

Wet ____ Water Column in Well 1.50 Gallons Pumped/Bailed Prior to Sampling 3 gallons

Gallons per Foot 0.65

Gallons in Well 0.975 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method Teflon bailer w/ teflon leader

SAMPLING DATA/FIELD PARAMETERS

Color grey/grey/grey Odor strong/moderate/moderate Appearance turbid/turbid/turbid Temperature 15.5/15/15/15 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 385/385/370/370 pH 5.8/5.8/5.7/5.7

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW, LH

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page ____ of ____

Site Location Syosset, NY

Site/Well No. PK-10S Coded/ Replicate No. ____ Date 12·1·93

Weather Sunny 40 Time Sampling Began 9:30 Time Sampling Completed 12:05

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation ____

Total Sounded Depth of Well Below MP 149.90 Water-Level Elevation ____

Held ____ Depth to Water Below MP 108.49 Diameter of Casing 4"

Wet ____ Water Column in Well 41.41 Gallons Pumped/Bailed Prior to Sampling 135 gal.

on: 10:45
off: 11:15

Gallons per Foot 0.65

Gallons in Well 26.90 Sampling Pump Intake Setting (feet below land surface) 123 ft. bmp

Evacuation Method 4" Sub. pump Q = 4.5 gpm T = 20 min

SAMPLING DATA/FIELD PARAMETERS

Color yellowish/yellowish/yellowish/yellowish Odor none/none/none/none Appearance cloudy/cloudy/cloudy/cloudy Temperature 13/13/13/13 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 185/190/188/187 pH 5.7/5.8/5.9/5.9

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page____ of____

Site Location Syosset, NY

Site/Well No. PK-10I Coded/ Replicate No. Rep-2 Date 12.1.93

Weather Clear 50's Time Sampling Began 12:15 Time Sampling Completed 1:45

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation ____

Total Sounded Depth of Well Below MP 362.19 Water-Level Elevation ____

Held ____ Depth to Water Below MP 107.87 Diameter of Casing 4"

Wet ____ Water Column in Well 254.32 Gallons Pumped/Bailed Prior to Sampling 495 gal.

on: 12:31
off: 1:12

Gallons per Foot 0.65

Gallons in Well 165.30 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 4" sub. pump Q=12 T=41

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear/clear Odor slight/slight/slight/slight Appearance bubbly clear/bubbly clear/bubbly clear/bubbly clear Temperature 14/15/15/14.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 1500/1500/1600/1550 pH 6.5/6.5/6.6/6.6

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks * field blank taken after PK10S before PK 10I

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. PK-10D Coded/ Replicate No. MS/MSD Date 12.1.93

Weather Sunny 40's Time Sampling Began 8am Time Sampling Completed 11.15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 499.68 Water-Level Elevation ______

Held ______ Depth to Water Below MP 108.38 Diameter of Casing 4"

Wet ______ Water Column in Well 391.30 Gallons Pumped/Bailed Prior to Sampling 960

on: 8:55

Gallons per Foot 0.65 120 dried in 5 min

off: 10:15

Gallons in Well 25.43 Sampling Pump Intake Setting (feet below land surface) set at 135

Evacuation Method 4" sub. pump Q = 12gpm T = 63min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless/colorless Odor none/none/none/none Appearance slightly cloudy/"/"/" Temperature 13/12/12/12.5 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance, umhos/cm 92/112/90/85 pH 6.0/6.3/6.1/6.1

Sampling Method and Material ______

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
See COC		

Remarks ______

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill/NY0029.008

Page 1 of 1

Site Location Syosset, NY

Site/Well No. RB-1S

Coded/ Replicate No.

Date 11/30/93

Weather 40's clear

Time Sampling Began 10:30

Time Sampling Completed 3:00

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface

MP Elevation

Total Sounded Depth of Well Below MP 144.49

Water-Level Elevation

Held

Depth to Water Below MP 109.38

Diameter of Casing 4"

Wet

Water Column in Well 35.11

Gallons Pumped/Bailed Prior to Sampling 69 gal.

on: 1:56

Gallons per Foot 0.65

off: 2:06

Gallons in Well 22.82

Sampling Pump Intake Setting (feet below land surface)

Evacuation Method 4" submersible pump Q=7 gpm T=10 min

SAMPLING DATA/FIELD PARAMETERS

Color orange/none/none/none

Odor none/none/none/none

Appearance v. turbid/" /" /"

Temperature 14/14/14/14 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 58/57/55/56

pH 5.16/5.23/5.27/5.25

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M	Preservative
See COC		

Remarks

Sampling Personnel GW, DMcG

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Land fill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. RB-11I Coded/Replicate No. Rep-1 Date 11-30-93

Weather Clear 40 Time Sampling Began 8:00 Time Sampling Completed 12:00

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 358.07 Water-Level Elevation ______

Held ______ Depth to Water Below MP 110.45 Diameter of Casing 4"

Wet ______ Water Column in Well 247.62 Gallons Pumped/Bailed Prior to Sampling 483 gallons

on: 10:18
off: 11:19

Gallons per Foot 0.65

Gallons in Well 160.95 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" Sub. pump Q = 8gpm T = 61 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear Odor none/none/none Appearance clear/clear/clear Temperature 10.5/11/10/10 °F/°C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 210/210/208/210 pH 5.0/5.2/5.2/5.2

Sampling Method and Material Teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab ✓ or G&M ___	Preservative
See COC		

Remarks * field blank taken b/f sampling

Sampling Personnel LH, DMcG, GW

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY0029.008

Page ____ of ____

Site Location Syosset, NY

Site/Well No. RB-11D

Coded/ Replicate No. ____

Date 11-30-93

Weather Clear 40's

Time Sampling Began 7:15

Time Sampling Completed 10:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____

MP Elevation ____

Total Sounded Depth of Well Below MP 503.49

Water-Level Elevation ____

Held ____ Depth to Water Below MP 110.95

Diameter of Casing 4"

Wet ____ Water Column in Well 392.54

Gallons Pumped/Bailed Prior to Sampling 766 gal.

on: 8:24

Gallons per Foot 0.65

off: 9:26

Gallons in Well 255.15

Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 4" sub. pump Q = 12gpm T= 64 min

SAMPLING DATA/FIELD PARAMETERS

Color clear/clear/clear/clear Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 11.5/10/10/11 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance, umhos/cm 15/15/15/15 pH 6.4/5.1/5.2/5.2

Sampling Method and Material ____

Constituents Sampled	Container Description From Lab ✓ or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel LH, DMcG, GW

WELL CASING VOLUMES

GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86

Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset Landfill NY ~~0028~~ 0029.008

Page 1 of 1

Site Location Syosset, NY

Site/Well No. RW. 12I

Coded/ Replicate No. Rep-3

Date 12.2.93

Weather overcast 40

Time Sampling Began 8:15

Time Sampling Completed 12:30

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ______ MP Elevation ______

Total Sounded Depth of Well Below MP 360.34 Water-Level Elevation ______

Held ______ Depth to Water Below MP 117.87 Diameter of Casing ______

Wet ______ Water Column in Well 242.47 Gallons Pumped/Bailed Prior to Sampling 472.81

on: 10:55

Gallons per Foot 0.65

off: 11:44

Gallons in Well 157.60 Sampling Pump Intake Setting (feet below land surface) ______

Evacuation Method 4" Sub. pump Q = 10 gpm T = 49 min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless/colorless Odor none/none/none/none Appearance sl. turbid/sl. turbid/sl. turbid/sl. turbid Temperature 13/13/13/13 °C

Other (specific ion; OVA; HNU; etc.) ______

Specific Conductance umhos/cm 500/505/500/500 pH 6.3/6.3/6.4/6.3

Sampling Method and Material teflon bailer w/ teflon leader

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ______

Sampling Personnel GW, D. McG

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Syosset landfill NY0029.008 Page 1 of 1

Site Location Syosset, NY

Site/Well No. RW 12D Coded/ Replicate No. ____ Date 12.2.93

Weather overcast 40 Time Sampling Began 8:15 Time Sampling Completed 10:50

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ____ MP Elevation ____

Total Sounded Depth of Well Below MP 501.24 Water-Level Elevation ____

Held ____ Depth to Water Below MP 118.02 Diameter of Casing ____

Wet ____ Water Column in Well 383.22 Gallons Pumped/Bailed Prior to Sampling 747.27

on: 921 Gallons per Foot 0.65

off: 1026 Gallons in Well 249.09 Sampling Pump Intake Setting (feet below land surface) ____

Evacuation Method 4" Sub. pump Q= 12gpm T=65 min

SAMPLING DATA/FIELD PARAMETERS

Color colorless/colorless/colorless/colorless Odor none/none/none/none Appearance clear/clear/clear/clear Temperature 13/13/14/13 °C

Other (specific ion; OVA; HNU; etc.) ____

Specific Conductance umhos/cm 468/405/410/415 pH 5.6/5.7/5.6/5.7

Sampling Method and Material (teflon bailer w/teflon leader)

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
See COC		

Remarks ____

Sampling Personnel GW, DMCG

WELL CASING VOLUMES				
GAL./FT.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

G&M Form 12 6-86 Southprint 89-1473

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 061[redacted]

CHAIN-OF-CUSTODY RECORD

Project Number: NY 0029.008
Project Location: SYOSSET NY.
Laboratory: IEA MONROE
Sampler(s)/Affiliation: G. WILLIAMS / D MCGREGOR

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml VIALS VOC 524.2 (HCl)	1 LITER PLASTIC TOTAL METALS (HNO3)	1 LITER PLASTIC *DISSOLVED METALS (HNO3)	500 ml PLASTIC *DISSOLVED METALS (HNO3)	1 LITER PLASTIC WET CHEM (UNP)	500 ml PLASTIC NH3 H2SO4				TOTAL
SY-4	L	12-3-93		3	1		2	1	1				8
SY-2R	↓	↓		3	1		2	1	1				8
SY-2D				3	1	1		1	1				7
SY-3D				3	1		2	1	1				8
[redacted]SY-3				3	1	1		1	1				7
FB-12-3-93				3	1	1							5
TB 12-3-93				3									3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 46

Relinquished by: Derek McGregor	Organization: Geraghty & Miller, Inc.		Seal Intact? Yes No N/A
Received by:	Organization:	Date 12/3/93 Time 6 p.m.	(Yes)
Relinquished by:	Organization:		Seal Intact? Yes No N/A
Received by:	Organization:	Date / / Time	

Special Instructions/Remarks: Dissolved Metals filtered through 0.45 um filters.
*Dissolved metals put in 2-500ml plastic [illegible] because of a shortage of 1L plastic bottles. This was done for samples SY-4, SY-2R, and SY-3D.

Delivery Method: ☐ In Person ☐ Common Carrier ______ SPECIFY ☐ Lab Courier ☐ Other ______ SPECIFY

G&M Form 09.1.90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number LIRB/Syosset Landfill NY0079008

Project Location Syosset, New York

Laboratory IEA Labs Inc.

Sampler(s)/Affiliation D. Vines, G. Williams, L. Hendricks

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml. Vials VOCs 524.2 (w/HCL)	*Dissolved Metals* 1 Liter Plastic (w/HNO3)	1 Liter Plastic Total Metals (w/HNO3)	1 Liter Plastic Wet Chemistry (unp)	500 ml. Plastic Ammonia (w/H2SO4)					TOTAL
TB11193	L	11/1/93		3									3
FB11193	L	11/1/93		3	1	1	1	1					7
SY-9	L	11/1/93		3	1	1	1	1					7
SY-6d	L	11/1/93		3	1	1	1	1					7
SY-3dd	L	11/1/93		3	1	1	1	1					7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 31

Relinquished by: [signature] Organization: Geraghty & Miller
Received by: ______ Organization: ______ Date 11/1/93 Time 1530
Seal Intact? Yes No N/A

Relinquished by: ______ Organization: ______
Received by: ______ Organization: ______ Date ______ Time ______
Seal Intact? Yes No N/A

Special Instructions/Remarks:
* Dissolved metals filtered in field through 0.45 µm filters

Delivery Method: ☐ In Person ☒ Common Carrier Federal Express (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

G&M Form 09 1/90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page ____ of 1

Project Number: LI [illegible] Syosset Landfill NY0029008

Project Location: Syosset, New York

Laboratory: IEA Labs Inc

Sampler(s)/Affiliation: D Vines; G. Williams; L Hendricks

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml Glass Vials VOCs 524.2 (w/HCL)	1 Liter Plastic *Dissolved metals* (w/HNO3)	1 Liter Plastic Total metals Hardness (Tot) (w/HNO3)	1 Liter Plastic Wet Chemistry (none)	500 mL Plastic Ammonia (H_2SO_4)				TOTAL
TC11293	L	11/2/93		3								3
FC11293	L	11/2/93		3	1	1						5
SY-3	L	11/2/93		3	1	1	1	1				7
SY-3d	L	11/2/93		3	1	1	1	1				7
SY-4	L	11/2/93		3	1	1	1	1				7
SY-2d	L	11/2/93		3	1	1	1	1				7
SY-2R	L	11/2/93		3	1	1	1	1				7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 43

Relinquished by: [signature]	Organization: Geraghty & Miller		Seal Intact? Yes No N/A
Received by:	Organization:	Date 11/2/93 Time 1700	
Relinquished by:	Organization:		Seal Intact? Yes No N/A
Received by:	Organization:	Date __/__/__ Time	

Special Instructions/Remarks:
* Dissolved Metals field filtered through 0.45 µm filters.
[illegible] preserved in field.

Delivery Method: ☐ In Person ☒ Common Carrier Federal Express (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

G&M Form 09.1.90

GERAGHTY
MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number LEB/Syosset Landfill NY0029008
Project Location Syosset; New York
Laboratory IEA lab Inc.
Sampler(s)/Affiliation L. Hendricks, D. Vines
G. Williams

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml glass vials VOCs 524.2 (w/ HCl)	1 liter plastic *Dissolved Metals* (w/HNO3)	1 Liter Plastic Total Metals Hardness (w/HNO3)	1 Liter Plastic (unp) Wet Chemistry	500 mL plastic Ammonia (H_2SO_4)					TOTAL
SY-1	L	11.3.93		9	3	3	3	3					21
RB-11S	L	11.3.93		3	1	1	1	1					7
RB-11I	L	11.3.93		3	1	1	1	1					7
RB-11d	L	11.3.93		3	1	1	1	1					7
TB11393	L	11.3.93		3									3
EB11393	L	11.3.93		3	1	1	~~1~~						5
REP1	L	11.3.93		3	1	1	1	1					7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 57

Relinquished by: L. Hendricks — Organization: Geraghty & Miller, Inc
Received by: — Organization:
Date 11/3/93 Time 1615
Seal Intact? Yes No N/A

Relinquished by: — Organization:
Received by: — Organization:
Date / / Time
Seal Intact? Yes No N/A

Special Instructions/Remarks:
** Please use this sample for matrix spike/matrix spike duplicate **
* Dissolved Metals were field filter through 0.45 microns filters.

Delivery Method: ☐ In Person ☒ Common Carrier FEDEX (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

G&M Form 09 1-90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 0l6l6

CHAIN-OF-CUSTODY RECORD

Project Number LFB/Syosset Landfill NY0029008

Project Location Syosset, New York

Laboratory IEA Labs, Inc.

Sampler(s)/Affiliation D. Vines, G. Williams, L. Hendricks

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION: 40 ml. vials VOCs 524.2 (w/HCl)	*Dissolved Metals* 1 Liter plastic (w/HNO3)	1 Liter Plastic Total Metals (w/HNO3) ~~Total Hardness~~	1 Liter Plastic Wet Chemistry (UNP)	500 ml. Plastic Ammonia (H_2SO_4)					TOTAL
PK-10 I	L	11.4.93		3				1					4
Rep-2	L	11.4.93		3				1					4
⊛ PK-10d ⊛	L	11.4.93		9	3	3	3	3					21
PK-10S	L	11.4.93		3				1					4
SY-1d	L	11.4.93		3				1					4
TB11493	L	11.4.93		3									3
FB11493	L	11.4.93		3	1	1							5
SY-7	L	11.4.93		3				1					4
SY-8	L	11.4.93		3				1					4

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 53

Relinquished by: [signature] Received by:	Organization: Geraghty & Miller Organization:	Date 11/4/93 Time 1830	Seal Intact? (Yes) No N/A
Relinquished by: Received by:	Organization: Organization:	Date / / Time	Seal Intact? Yes No N/A

Special Instructions/Remarks:

⊛ Please use this sample for our matrix spike/matrix spike duplicate

* Dissolved metals field filtered through 0.45 µm filters

Delivery Method: ☐ In Person ☒ Common Carrier Federal Express (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

G&M Form 09 1.90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number LNB/Syosset Landfill NY0029008

Project Location Syosset, New York

Laboratory IEA Labs, Inc.

Sampler(s)/Affiliation D. Villas; O. Williams
L. Hendricks

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	1 Liter Plastic * Dissolved Metals* (w/HNO3)	1 Liter Plastic Total Metals, Hardness (w/HNO3)	1 Liter Plastic Wet Chemistry (unp)							TOTAL
SY-1d	L	11/4/93		1	1	1							3
SY-8	L	11/4/93		1	1	1							3
Rep-2	L	11/4/93		1	1	1							3
PK-10S	L	11/4/93		1	1	1							3
PK-10I	L	11/4/93		1	1	1							3
SY-7	L	11/4/93		1	1	1							3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 18

Relinquished by: [signature]	Organization: Geraghty & Miller	Date 11/4/93 Time 1830	Seal Intact? Yes No N/A
Received by:	Organization:		
Relinquished by:	Organization:	Date / / Time	Seal Intact? Yes No N/A
Received by:	Organization:		

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☑ Common Carrier Federal Express (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

G&M Form 09.1.90

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 06161

CHAIN-OF-CUSTODY RECORD

Page 1 of

Project Number LLB/Syosset Landfill/NY0D29008
Project Location Syosset, N.Y.
Laboratory IEA Labs, Inc
Sampler(s)/Affiliation L. Hendricks, D. Vines, G. Williams

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml. glass vials VOC 524.2 (w/HCL)	1 Liter Plastic * Dissolved Metals (w/HNO3)	1 Liter Plastic Total Metals Hardness (w/HNO3)	1 Liter Plastic Wet Chemistry (UNP)	500 ml. Plastic Ammonia (H2SO4)					TOTAL
RW-12D	L	11.5.93		3	1	1	1	1					7
RW-12 I	L	11.5.93		3	1	1	1	1					7
Rep 3	L	11.5.93		3	1	1	1	1					7
FB 11593	L	11.5.93		3	1	1							5
TB 11593	L	11.5.93		3									3
SY-6	L	11.5.93		3	1	1	1	1					7

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 36

Relinquished by: L. Hendricks	Organization: Geraghty & Miller, Inc		
Received by:	Organization:	Date 11/5/93 Time 1500	Seal Intact? Yes No N/A
Relinquished by:	Organization:		
Received by:	Organization:	Date / / Time	Seal Intact? Yes No N/A

Special Instructions/Remarks:
* Dissolved Metals field filtered through 0.45 um filters

Delivery Method: ☐ In Person ☒ Common Carrier Federal Express (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

G&M Form 09 1.90

APPENDIX J

GAS WELL CONSTRUCTION LOGS

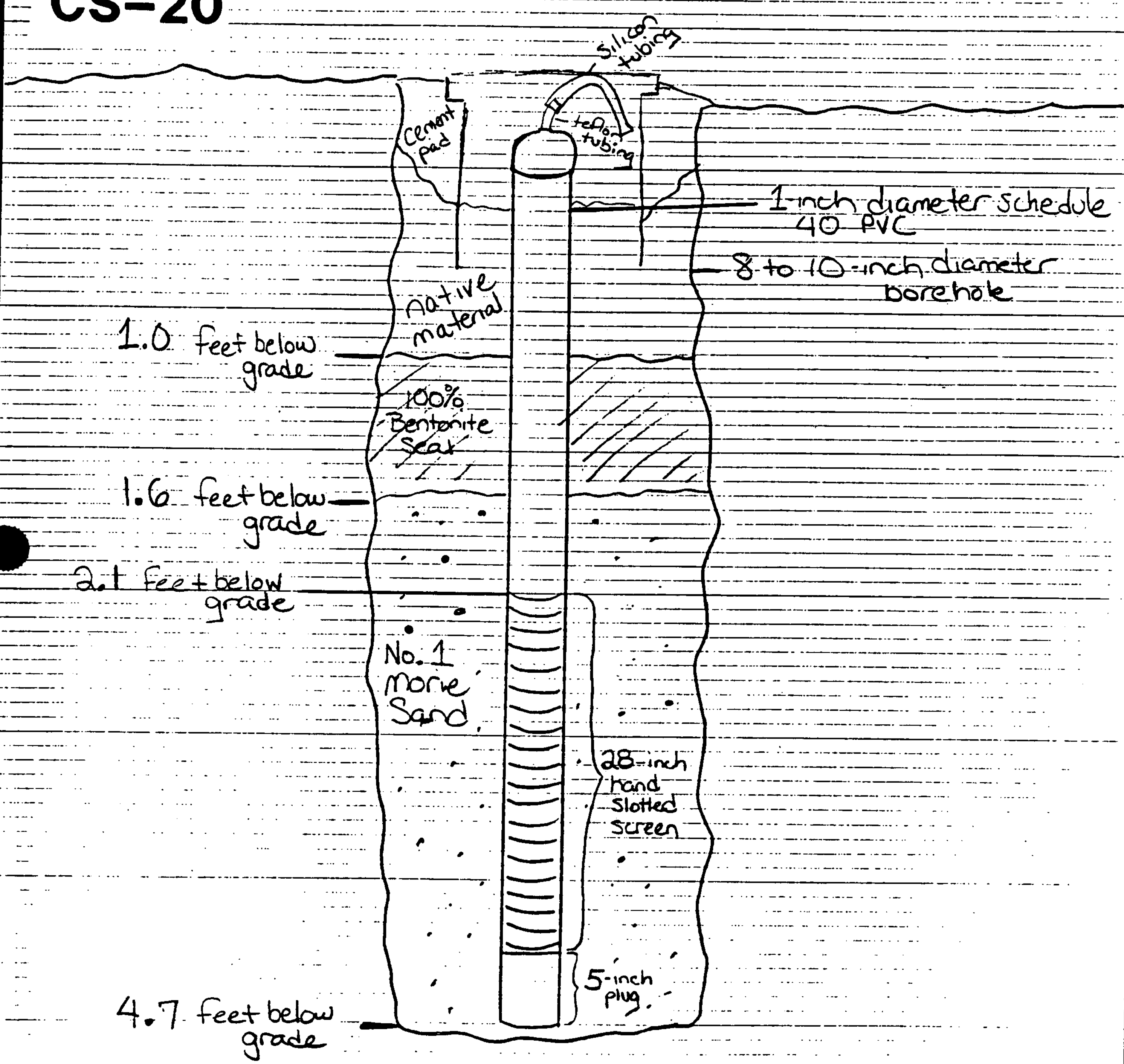
GERAGHTY & MILLER, INC.
Environmental Services

SUBJECT: Gas Monitoring Wells
PROJECT: LKB- Syosset Landfill
CLIENT/PROJECT NO: NY0029008

BY: S. Zaggy DATE: 9/30/93
CHKD: DATE:
REV: DATE:

PAGE 1
SHEET 1

CS-20



NOTE: Each well was secured with an 8-inch diameter, flush-mounted steel man hole and cover, cemented in place.

G&M Form 30 6-89

Southprint 89-1294

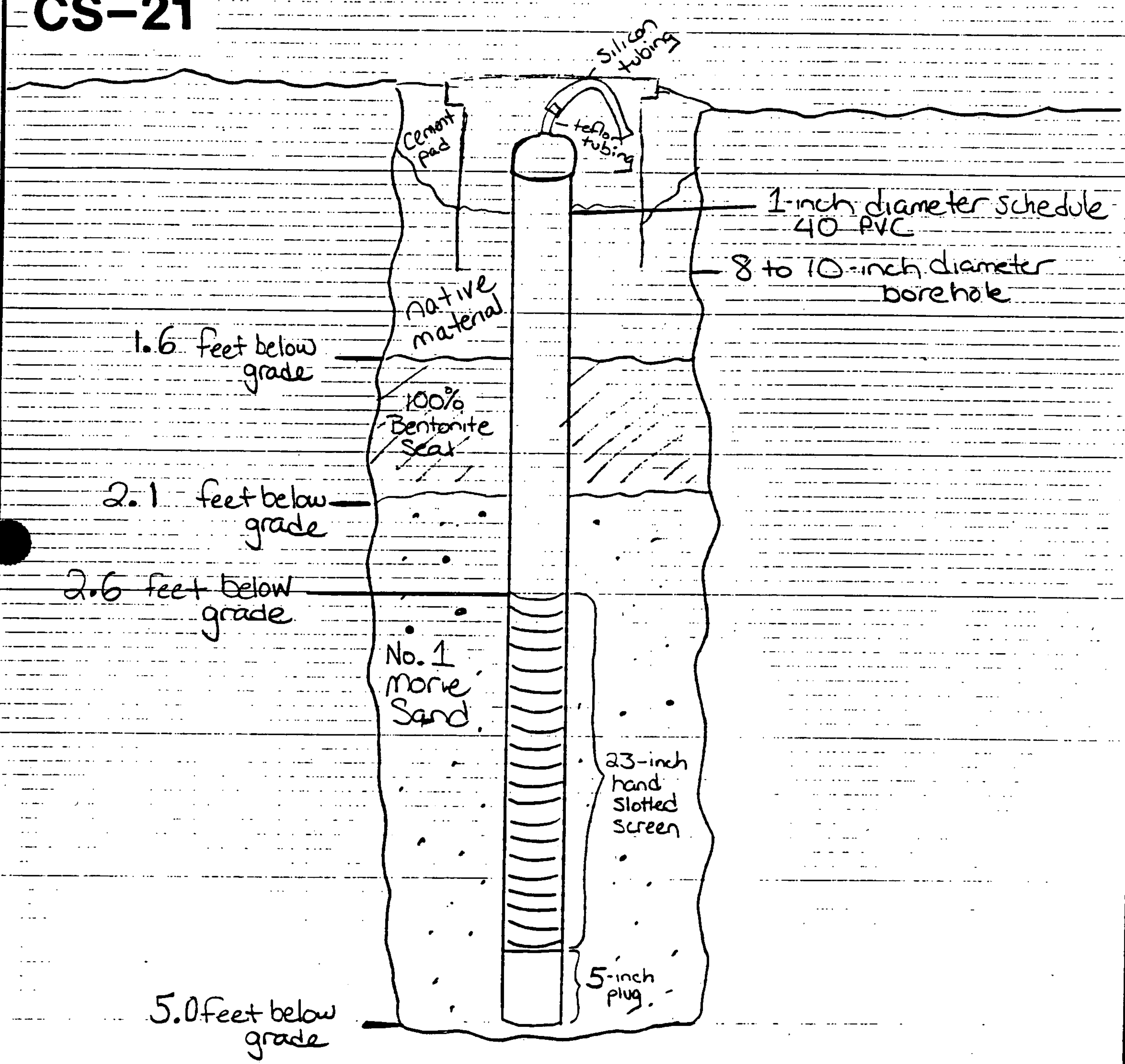
GERAGHTY & MILLER, INC.
Environmental Services

SUBJECT: Gas Monitoring Wells
PROJECT: LKB- Syosset Landfill
CLIENT/PROJECT NO: NY0029008

BY: S. Zoggi DATE: 9/30/93
CHKD: DATE:
REV: DATE:

PAGE 1
SHEET 1

CS-21



NOTE: Each well was secured with an 8-inch diameter, flush-mounted steel man hole and cover, cemented in place.

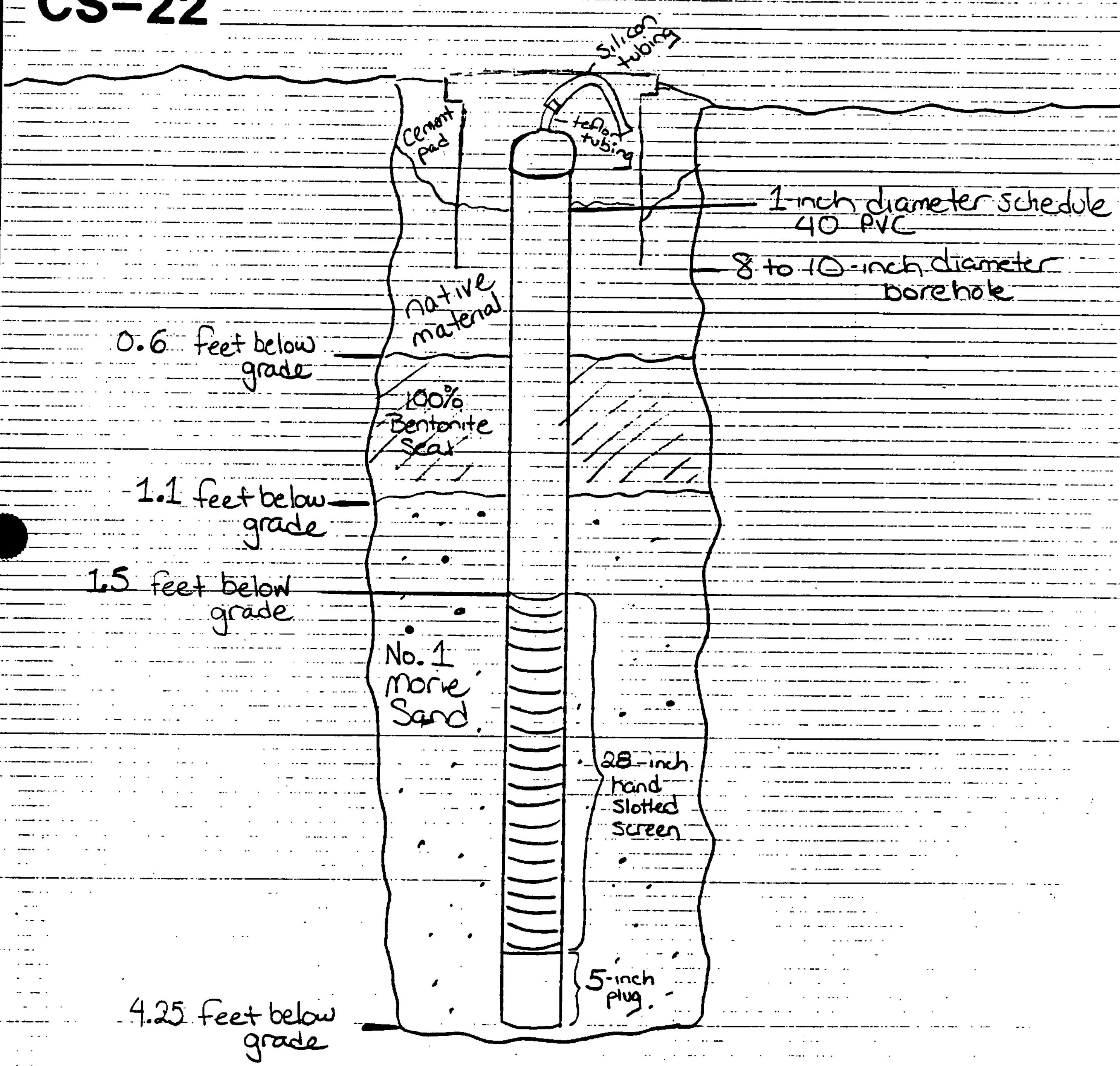
GERAGHTY & MILLER, INC.
Environmental Services

SUBJECT: Gas Monitoring Wells
PROJECT: LKB- Syosset Landfill
CLIENT/PROJECT NO: NY0029008

BY: S. Zagg DATE: 9/30/93
CHKD: DATE:
REV: DATE:

PAGE 1
SHEET 1

CS-22



NOTE: Each well was secured with an 8-inch diameter, flush-mounted steel man hole and cover, cemented in place.

G&M Form 30 6-89 Southpoint 89-1294

APPENDIX K

MEMORANDUM FROM LOCKWOOD, KESSLER & BARTLETT, INC.
REGARDING THE INSTALLATION AND MONITORING
OF ON-SITE SUBSURFACE GAS MONITORING WELLS
AS PART OF THE FIRST OPERABLE UNIT
REMEDIAL DESIGN PROGRAM

APPENDIX K
ON-SITE SUBSURFACE GAS MONITORING

PERFORMED BY
LOCKWOOD, KESSLER & BARTLETT, INC.
AS PART OF THE
FIRST OPERABLE UNIT
REMEDIAL DESIGN FOR THE SYOSSET LANDFILL

PURPOSE

The Syosset Landfill Second Operable Unit (OU2) Remedial Investigation (RI) Work Plan called for the installation of five new on-site gas monitoring cluster wells along the site's northeastern property line. These wells were installed and monitored during the First Operable Unit (OU1) Remedial Design Program. The following paragraphs discuss the monitoring well installation, well construction, gas monitoring protocols and sampling results.

GAS WELL INSTALLATION AND CONSTRUCTION

The five on-site gas monitoring cluster wells (CW-4 through CW-8), having monitoring depths of 15 and 35 feet below grade, were installed as part of the soil boring program for the OU1 Remedial Design in accordance with the requirements of the OU1 Remedial Design Work Plan (LKB, 1991). The wells were installed from September 16-21, 1992 by Soil Mechanics Drilling Corp. under the supervision of LKB and Malcolm Pirnie (USEPA oversight consultant for the OU1 Remedial Design).

The cluster well locations are shown on Figure K-1. Cluster well CW-4 was installed along the property line adjacent to the homes at the northern end of Abby Lane. Wells CW-5 and CW-6 were located at the property line in the vicinity of the South Grove Elementary School Building and the South Grove School Annex, respectively. Wells CW-7 and CW-8 were installed at the property line near the homes on Colony Lane and adjacent to existing gas monitoring wells G-14 and G-13, respectively. Locating wells CW-7 and CW-8 in this manner provided well clusters consisting of three wells each at those two locations with monitoring depths of 5', 10' and 35'. The installation of these five cluster wells along the northeastern property line supplemented the three existing cluster wells (CW-1, 2 and 3) located in the vicinity of the site's gas venting trench. Cluster wells CW-1, 2 and 3 have monitoring depths of 6', 11' and 35' each. These eight cluster wells provide gas monitoring points throughout the site's northeastern boundary.

Cluster wells CW-4 through CW-8 were constructed by using the hollow stem auger method to drill a 10-inch diameter borehole to a depth of 35 feet. Two 2-inch diameter PVC monitoring wells were installed within each borehole at depths of 15 and 35 feet below grade. Each monitoring well contained a five foot length of PVC well screen. The annular space around each screen length was filled with gravel packing and the wells were separated with a two foot deep section of bentonite slurry. The remaining borehole annulus was filled with backfill material. The well head assembly consisted of a PVC cap, reducer fitting and a 1/2 inch diameter PVC ball valve as shown on Figure K-1. The wells were completed at grade with a flush mount frame and cover set in two feet of concrete centered around each cluster well.

The OU2 RI Work Plan called for monitoring the five additional cluster wells along with existing well CW-2 on two occasions of falling barometric pressure. Following the first sampling round conducted on January 21, 1993, the Town requested permission from the USEPA to install three additional five foot deep monitoring wells at cluster well locations CW-4, 5 and 6 to provide additional information at shallow depths. The Town received USEPA approval to install the wells on August 23, 1993 and the wells were installed by LKB on October 22, 1993. The wells were constructed similar to the proposed off-site gas monitoring wells. LKB drilled an eight inch borehole using a gas powered, hand held auger supplemented by a manual sand auger. A five foot deep, 1 inch diameter PVC gas monitoring well was installed in the borehole. Each well contained a screen length of four feet. The borehole annulus around the screen was backfilled with gravel packing material with a bentonite slurry seal above the screened zone extending to the land surface. The wells were completed approximately three feet above grade with a PVC cap.

GAS MONITORING PROTOCOLS

Wells CW-2, 4, 5, 6, 7, and 8 were sampled for TCL-VOCs and methane on January 21, 1993 and December 3, 1993 by LKB. VOC samples were obtained following the protocols in the OU1 Remedial Design Work Plan using laboratory traps and sampling pumps to collect 250 ml sample volumes. QA/QC procedures outlined in the OU1 Remedial Design Work Plan were followed, including performing one duplicate sample during each monitoring event. The individual TCL-VOCs were analyzed by EcoTest, Inc. using a gas chromatograph. The second round of VOC samples was rejected due to laboratory contamination of the sampling apparatus. The second round was repeated on April 15, 1994. The samples are currently being analyzed by the laboratory. Methane was also monitored at each cluster well using a combustible gas indicator.

SAMPLING RESULTS

The results of the first round of gas monitoring at the on-site cluster wells are summarized in Table K-1. Since there are no current air quality standards for VOC's in ambient air, the sampling results were compared to the current New York State (NYS) Air Guide 1 Annual Guideline Concentrations (AGC) for ambient air. In general, TCL-VOCs were not detected or detected in low concentrations (below the AGC) on-site with the following exceptions. Methylene Chloride was found in several of the cluster wells at concentrations ranging from 12 to 100 ug/m^3. However, this compound was also found in the field blank at 24 ug/m^3 and is known as a common laboratory contaminant. Chloroform was found in wells CW-2 (6' & 35'), CW-4 (15' & 35'), and CW-7 (15') at concentrations from 24 to 52 ug/m^3. Tetrachloroethene was detected in wells CW-4 (15' & 35') and CW-7 (35') at concentrations between 10 and 68 ug/m^3.

Chlorobenzene was found in wells CW-4 (15' & 35') and CW-5 (35') at concentrations between 48 and >200 ug/m^3 (exceeded the upper quantification limit). The upper quantification limit was exceeded because the sample trap became saturated with the compound before the fixed volume of sample (250 ml) was fully collected. This problem was rectified by the laboratory during the second round of samples, however the data collected in that round was rejected due to laboratory contamination of the sampling apparatus. The upper quantification limit above the respective AGC levels was also exceeded for other compounds including chloromethane (CW-5, 35'); carbon disulfide (CW-5, 35'); vinyl acetate (CW-4, 35'; CW-5, 35'); m+p xylene (CW-4, 35'; CW-5, 35'); total xylenes (CW-4, 35'; CW-5, 35', CW-8, 35'; CW-8, 35' DUP). For some other compounds detected, the AGC value was greater than the upper quantification limit. Therefore, excursion of the guideline value is unable to be determined.

Methane was detected in only four of the eighteen wells sampled, ranging in concentrations from 1.4 % in well CW-8 (35') to 10.0 % in wells CW-4 (35') and CW-5 (35').

TABLE K-1

SYOSSET LANDFILL

CLUSTER WELL GAS SAMPLING RESULTS – 1/21/93

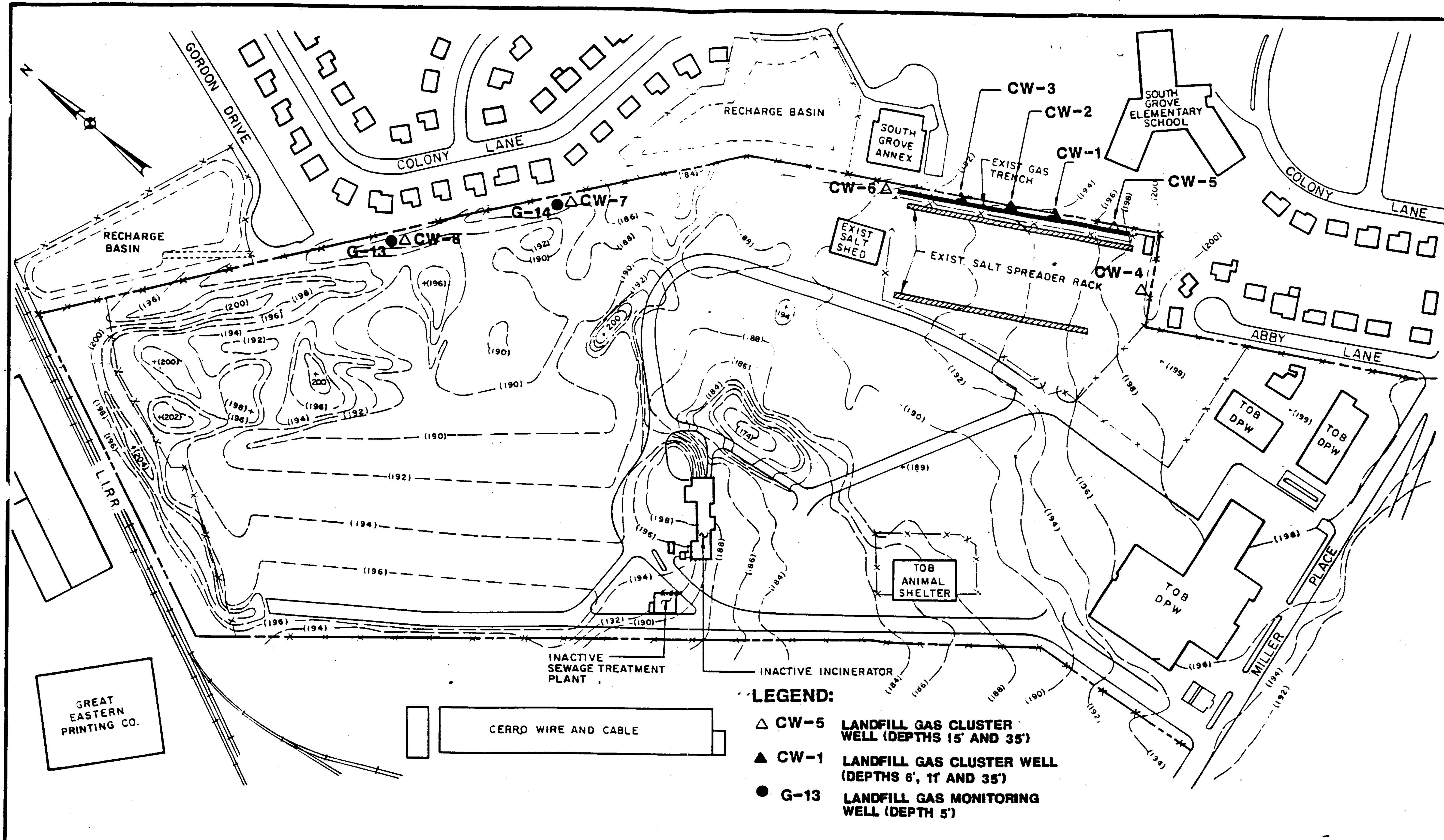
COMPOUND	CW-2 (6')	CW-2 (11')	CW-2 (35')	CW-4 (15')	CW-4 (35')	CW-5 (15')	CW-5 (35')	CW-6 (15')	CW-6 (35')	G-14 (5')	CW-7 (15')	CW-7 (35')	G-13 (5')	CW-8 (15')	CW-8 (35')	CW-8 35' DUP	FIELD BLANK	GUIDELINES NYS Air Guide 1 SGC	AGC
	WELL NUMBER AND RESULTS (UG/M3)																		
Chloromethane	–	–	–	–	–	–	>200	–	16	–	–	–	72	68	–	36	–	22,000	770
Bromomethane	–	–	–	–	–	–	–	–	–	–	12	–	–	–	–	–	–	4,524 (I)	45 (I)
Vinyl Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Chloroethane	–	–	–	20	–	–	–	–	–	–	–	–	–	–	–	–	–	630,000	63,000
Methylene Chloride	60	–	100	56	12	76	44	80	12	76	76	40	–	76	36	72	24	41,000	27
Acetone	–	–	–	>200	–	–	–	–	–	–	–	–	80	68	>200	>200	–	140,000	14,000
Carbon Disulfide	–	–	–	–	–	–	>200	–	–	–	–	–	–	–	–	–	–	710	7
1,1 Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
1,1 Dichloroethane	–	–	–	–	20	–	12	–	–	–	–	–	–	–	–	–	–	190,000	500
1,2 Dichloroethene	–	–	–	–	16	–	–	–	–	–	–	–	–	–	–	–	–	190,000	1,900
Chloroform	28	–	28	24	52	20	12	16	–	20	40	–	–	–	–	–	–	980	23
1,2 Dichloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	110	120	–	140,000	300
111 Trichloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		-
Carbon Tetrachloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Vinyl Acetate	–	–	–	–	>200	–	>200	–	–	–	–	–	–	–	–	–	–	8,333 (I)	83 (I)
Bromodichloromethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
1,2 Dichloropropane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
t 13 Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Trichloroethylene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Chlorodibromomethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
112 Trichloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
c 13 Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Bromoform	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
2-Hexanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
4-Methyl-2-Pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	40	20	–	48,000	480
1122 Tetrachloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Tetrachloroethene	–	–	–	68	10	–	–	–	–	–	–	10	–	–	–	–	–	81,000	0.075
Chlorobenzene	–	–	–	48	>200	–	>200	–	–	–	–	–	–	–	–	–	–	11,000	20
Benzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Toluene	–	–	–	28	76	–	>200	–	–	–	–	–	–	–	80	60	–	89,000	2,000
Ethyl Benzene	–	–	–	190	>200	–	>200	–	–	–	–	–	–	–	60	60	–	100,000	1,000
Styrene	–	–	–	>200	>200	–	>200	–	–	–	–	–	–	–	180	200	–	51,000	510
o Xylene	–	–	–	–	>200	–	>200	–	–	–	–	–	–	–	>200	>200	–	100,000	700
m + p Xylene	40	–	–	170	>400	–	>400	–	–	–	32	–	10	–	120	110	–	100,000	300
Xylene	40	–	–	170	>600	–	>600	–	–	–	32	–	10	–	>300	>300	–	100,000	300
Methane (% gas)	–	–	–	4.5	10.0	–	10.0	–	–	–	–	–	–	–	1.4	1.4	–		

– = Not Detected

(I) = Assumed Interim Value

SGC = Short-term Guideline Concentrations

AGC = Annual Guideline Concentrations



PREPARED BY LKB LOCKWOOD, KESSLER & BARTLETT, INC. CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK	CLIENT TOWN OF OYSTER BAY DEPARTMENT OF PUBLIC WORKS SYOSSET, NEW YORK	PROJECT TITLE SYOSSET LANDFILL SECOND OPERABLE UNIT REMEDIAL INVESTIGATION	TITLE ON-SITE LANDFILL GAS CLUSTER WELL LOCATIONS	DESIGN BY TH DRAWN BY GC CHECKED BY TH DATE JUNE 1991 SCALE 1"=200'	FIGURE K-1

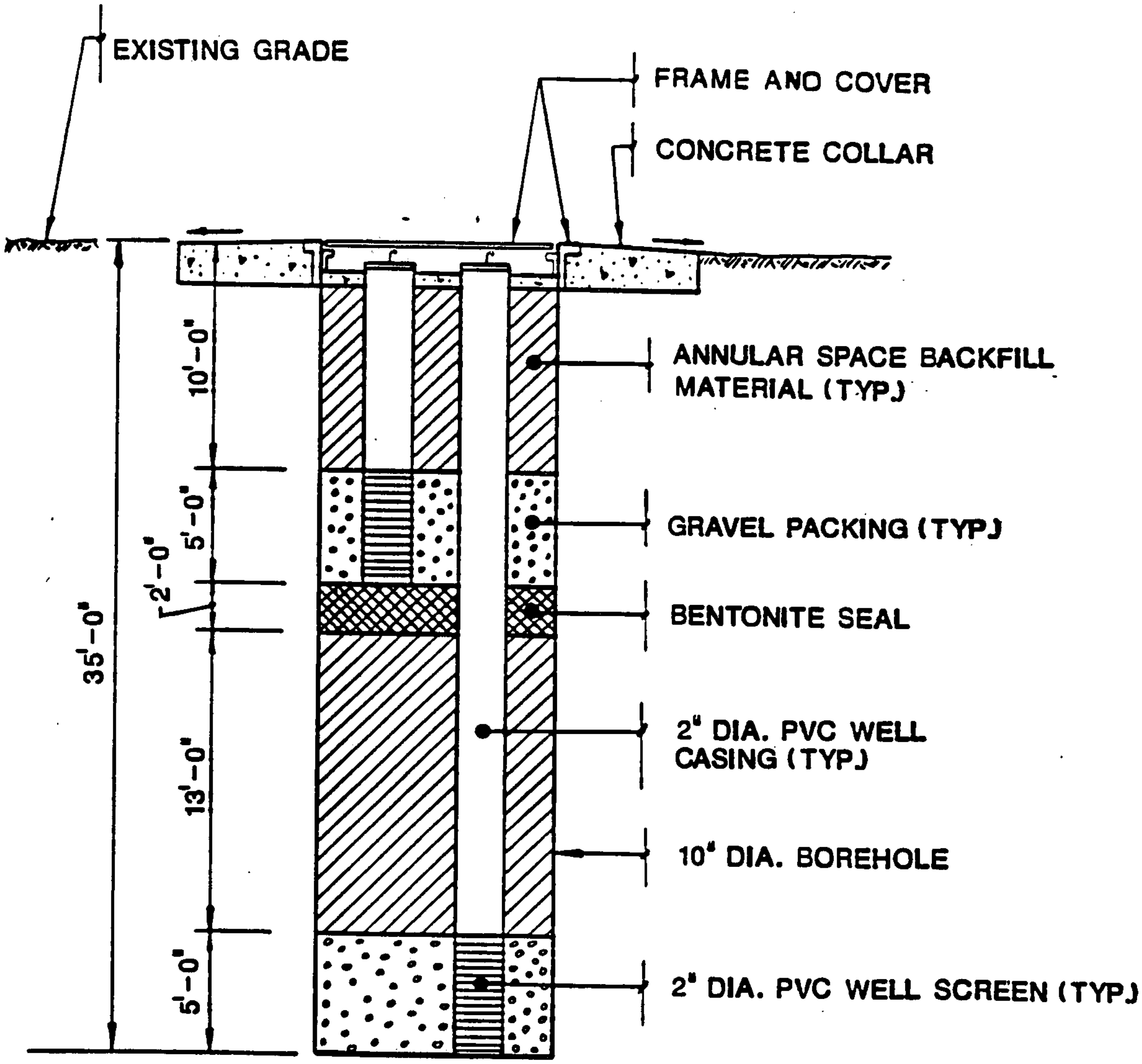


FIGURE K-2

LKB

TYPICAL LANDFILL GAS CLUSTER WELL

APPENDIX L

BACKGROUND INFORMATION TEXT AND RELATED TABLES AND FIGURES FROM OU-1 RI REPORT

REMEDIAL INVESTIGATION REPORT
SYOSSET LANDFILL
SYOSSET, NEW YORK

1.0 INTRODUCTION

Geraghty & Miller, Inc. was retained by the firm of Lockwood, Kessler & Bartlett, Inc. (LKB) under contract to the Town of Oyster Bay to participate in a Remedial Investigation/Feasibility Study (RI/FS) for the Syosset municipal landfill site. LKB provided overall project management and will continue to provide engineering expertise necessary to complete the RI/FS process. This document constitutes the Interim RI Report. The RI was performed in accordance with the protocols and methodologies detailed in the Site Operations Plan (SOP, August 1986), which was approved by the U.S. Environmental Protection Agency (USEPA). The SOP was developed and prepared in accordance with the work plan for the Interim RI to ensure that the RI would be completed in a manner consistent with the National Contingency Plan (NCP).

The RI was conducted to complete data gaps from previous investigations (Table 1) in relation to the hydrogeology, water quality, and potential subsurface gas migration in order to determine the extent of on-site environmental impacts and the potential need for an off-site investigation. The previous investigations referred to in Table 1 were performed by various agencies and/or consultants to address specific issues associated with the site. The ERM-Northeast (ERM) report (1983) was the principal source of background data used to develop the RI work plan and the SOP. The monitoring wells installed during the ERM study were judged to be suitable for water-level and water-quality monitoring purposes based on observations made in the field and the drilling methodologies described in the ERM report. Therefore, these wells were used as monitoring points during the Interim RI. Further, the water-quality data from the ERM report were subjected to the verification process as described in the SOP, and these data were used to develop the RI work plan as described above.

2.0 SITE DESCRIPTION AND HISTORY

The Syosset Landfill is located in central Nassau County in the Town of Oyster Bay, Syosset, New York. The site is roughly rectangular in shape and encompasses approximately 35 acres. The offices and facilities of the Town of Oyster Bay Department of Public Works (TOB-DPW) are located adjacent (east) to the landfill and occupy approximately 18 acres; together the landfill and the adjacent facilities total approximately 53 acres. Currently the Town of Oyster Bay (TOB) controls access to the site which is fenced in. Topographically, the site is relatively flat and at similar elevation to the surrounding area. The site is characterized by basically a barren landscape with some clumps of trees. This is discussed in greater detail in Section 2.5. As illustrated in Figure 1, the site is bounded by the Long Island Expressway and Miller Road to the southeast, Cerro Wire & Cable Corporation to the southwest, and the Long Island Railroad to the northwest. A residential area and the South Grove Elementary School border the site to the northeast. The entire landfill area is enclosed by a 6-ft high cyclone fence.

There are two recharge basins owned by Nassau County which border the site to the northeast and north and are illustrated on figures provided in the Interim RI report. Nassau County recharge basin RB-284 (0.63 acres) borders the site to the northeast and Nassau County storm-water basin SWB-571 (0.23 acres) borders the site to the north. Both basins collect storm water runoff from the neighboring residential area where the water either evaporates or recharges to the underlying Magothy aquifer.

2.1 Well Inventory

During the Interim RI, a well inventory was performed to determine the locations of public supply wells (pumping and nonpumping) within a 3-mile radius of the site. Industrial wells were also included in the inventory for the area within a 1-mile radius of the site. The 1 mile distance was selected for industrial wells to account for major withdrawals that may affect ground-water flow patterns in the vicinity of the site. The 3-mile distance was selected for public supply wells to ensure all wells being used for consumptive purposes were accounted for within a distance beyond that which could be impacted by a potential leachate plume.

Data collected for this survey were obtained from well records and maps at the New York State Department of Environmental Conservation (NYSDEC) offices in Stony Brook, New York. A summary of data for the public supply and industrial wells is provided in Tables 2 and 3, respectively, and the locations of these wells are shown on Figure 2. The pumpage data (1986), reported in Tables 2 and 3, were the most recent data available in the NYSDEC files. Data on domestic or other users of ground water in the vicinity of the site are not provided because they do not exist; the entire area is serviced by local water districts (Jericho, Hicksville, and Plainview).

2.1.1 Public Supply Wells

As can be seen in Figure 2, although there are four public supply wells within a 1-mile radius of the site (Wells N4133, N4246, N6190, and N6191), none of these wells are currently in service (Table 2). Well N4133 was sealed in 1982 reportedly as a result of odor problems.

According to the Jericho Water District, Well N4246 was disconnected from the water supply system and will likely be sealed as a result of the recent detection of volatile organic compounds (VOCs) in this well (Edwards, pers. comm. 1988). With respect to volatile organic compounds (VOCs) detected in the public supply well N4246, it is unlikely that this well has been impacted by the landfill. This well is located approximately 0.5 miles west of the site, thus conditions at this location are not consistent with conditions at the landfill, given the conclusions presented in this report. According to a representative of the Hicksville water district (Woodwell, pers. comm. 1988), Wells N6190 and N6191 are used only during periods of peak demand, although, as indicated in Table 2, there was no reported pumpage from these wells in 1986.

As seen in Figure 2, there are eight public supply wells (excluding Well N4133) located within 3 miles of the site in the general direction of ground-water flow (northeast)(see Section 4.1.1). The closest of these public supply wells (Wells N198 and N199) are located approximately 2 miles to the northeast. These two wells are screened in a deeper part of the Magothy aquifer (540 to 620 ft below land surface) and are still in service, according to the Jericho Water District (Edwards, pers. comm. 1988).

Public Supply Well N570, the next closest well, is located approximately 0.4 miles northeast of Well N198 and N199. The remaining five public supply wells, located in the northeast quadrant of the map, are either approximately 3 miles from the site and/or are due north or east of the site.

2.1.2 Industrial Wells

According to data obtained from the NYSDEC files, 14 industrial wells (pumping more than 45 gallons per minute [gpm]) are located within 1 mile of the site. The locations of these wells are shown on Figure 2. These wells are screened in the Magothy aquifer at depths ranging from 120 to 440 ft below land surface and are reportedly used for general industrial, air conditioning, or fire protection purposes. Only one of the 14 industrial wells (Well N3838) is reportedly used for domestic purposes. This well is not located downgradient of the site; rather it is located approximately 0.2 miles west (upgradient) of the landfill. Only three of these wells have withdrawals reported to the NYSDEC in 1986. All owners of private wells are required to report their total pumpage on an annual basis for each well with a flow rate greater than 45 gpm. Two of the wells (N3569 and N6741) with pumpage reported to the NYSDEC are located on Cerro Wire & Cable Corporation's (Cerro) property, adjacent to the site, and are reportedly used for industrial purposes. In 1986, the withdrawal of ground water from Wells N3569 and N6741 was 53 and 115 million gallons, respectively; however, these two wells apparently are no longer in service since Cerro reportedly closed for business in the latter part of 1986. A third well, owned by Reckson Associates (N9842), reported 85 million gallons withdrawn from the Magothy aquifer in 1986; this well is located approximately 0.4 miles northwest of the site.

2.2 Waste Disposal

The Syosset Landfill reportedly began practicing refuse disposal in 1933 and continued until 1967. The only data available on waste characterization are provided in the ERM Northeast Report (1983). According to this report, the waste types accepted included the following: commercial, industrial, residential, demolition, agricultural, sludge, and ash. From 1967 until its close in 1975, the site accepted only scavenger cesspool waste, which was processed at the treatment facility located near the defunct incinerator building, and industrial waste.

Interviews with sanitation department personnel who were involved with the site's daily activities during its period of operation, and a review of aerial photographs of the site have been the sole sources of information on landfill practices. The site was excavated into two cells to depths of approximately 60 to 90 ft below land surface (see Sections 3.2 and 4.3). Segregation of wastes appears to have been limited to scavenger cesspool waste which was treated at the facility mentioned above, and tires which were disposed of along the fence in the vicinity of Well SY-4, as indiated by aerial photographs. Buried combustible fill materials were reportedly ignited and allowed to burn in portions of the landfill.

2.3 Climatology

Long Island has a modified continental climate, resulting from the combined influence of prevailing westerly winds and the proximity to the Atlantic Ocean. Most weather conditions approach from the continental land mass from the west because of prevailing westerly winds. The climate is relatively humid, with air temperature extremes modified by the Atlantic Ocean and, to a lesser extent, by Long Island Sound. Graphs of air temperature in Garden City, New York, located approximately 8 miles from the study area, indicate that the lowest mean monthly air temperature is 31.4^{O}F (January), and the highest is 74.9^{O}F (July) (Isbister 1966).

The highest temperature recorded at LaGuardia Airport in northern Nassau County was 107°F in July 1966 and the lowest temperature was -3°F in January 1985. Average monthly wind speeds vary from 10.4 miles per hour (mph) in July and August to 14.1 mph in March with the wind speed averaging 12.3 mph for the year. The average wind direction is from the northwest or west-northwest from November through April and from the south from June through September. The average wind direction in March is from the northeast and in October from the southwest with an average wind direction from the south for the year (National Oceanic and Atmosheric Administration 1988).

2.3.1 Precipitation

Precipitation in Nassau County averages 42 inches per year, as determined from 30 years of records collected by the National Weather Service. The annual precipitation recorded in Manhasset, New York from 1938 to 1978 reached a maximum of 64.70 inches in 1975 and a minimum of 22.73 inches in 1965; the long-term average annual precipitation from 1938 to 1978 is 41.95 inches. Mean monthly precipitation in Manhasset ranges from a low of 2.68 inches in June to a high of 4.09 inches in August (Kilburn & Krulikas 1987). At LaGuardia Airport, there is an average of 20 to 25 thunderstorms per year (National Oceanic and Atmospheric Administration 1988).

2.3.2 Evapotranspiration

Evapotranspiration (evaporation and transpiration) in the Upton, New York area of Suffolk County ranges from 15 inches per year in areas where vegetation is thin to approximately 30 inches per year near streams and swamps. In this study area, the average annual evapotranspiration ranges from 22 to 26 inches per year (Isbister 1966).

2.3.3 Recharge

The water-table aquifer (Magothy) is recharged by precipitation which moves downward through the unsaturated zone until it reaches the water table. Precipitation at the site averages 42 inches per year, but as discussed earlier in this report, approximately one-half is lost by evapotranspiration. At the site runoff is considered negligible due to the relatively flat topography, the permeable surface conditions (sparse vegetation and sandy soil), and the absence of surface drainage (ditches, streams, etc.)(Isbister 1966). The remaining precipitation recharges the ground-water reservoir.

No permanent surface-water bodies exist on-site except for a small, isolated, shallow body of water southeast of the defunct incinerator building which mainly drains adjacent pavement and on-site roadways. Given the size of this pond, the area being drained, and the depth to ground water (greater than 100 ft), it would not be possible to isolate the potential impact of this pond from the overall impact of the landfill. This contention is supported by hydrogeologic and water-quality data in the Interim RI report. Drainage for the rest of the site is accomplished mainly by infiltration of precipitation into the subsurface. In the event overland flow (runoff) occurs, this water would only be in contact with the clean cover soil at the site and drained to the recharge basins located north and northeast of the site.

Infiltration rates of ground water are relatively high at the site, which is situated on an outwash plain where loamy soil is underlain by permeable sand and gravel deposits. A few miles north of the site is the Ronkonkoma terminal moraine where infiltration is impeded by extensive deposits of clay and till near the surface.

Infiltration and recharge vary considerably according to the season. Although precipitation is relatively evenly distributed throughout the year, net recharge is highest during winter and early spring when plant activity is at a minimum. During the summer and fall, growing plants utilize most of the precipitation and little, if any, recharge occurs. Runoff is probably also higher in the winter during the relatively brief periods when the ground is frozen (Isbister 1966).

The site is situated in an area defined by the Federal Emergency Management Agency as Zone C, an area of minimal flooding.

2.4 Soils and Vadose Zone

The native soils at the site were removed during its use as a sand and gravel pit. After its use as a landfill, the site was covered with a nearly flat layer of clean, sandy fill which forms the surface soil. This layer is recognized by the soil survey of Nassau County as being an Udorthent soil which consists of deep, excessively drained acid soils typically used at sanitary landfills. Usually, the surface is capped with a loamy veneer to encourage plant growth for stabilization. Udorthent soils are generally loose to firm, yellowish brown or pale brown loamy sand or sand.

2.5 Ecology

The site is located in a highly developed residential and industrial area which is not known to contain ecologically significant habitat. Surrounding land uses include industrial and commercial facilities to the south and west, Town of Oyster Bay Highway Yard to the east, and single-family homes to the north.

Most of the site is completely barren and with the remaining area consisting of sparse to moderately dense groupings of various hardwood trees, shrubs, and ground cover. Dominating tree species appear to be Black Locusts (4- to 8-inch diameter), Common Elder (2- to 6-inch diameter), and Chokecherry (2- to 6-inch diameter). Several varieties of broadleaf weeds, ivy, hawthorns, sumac, and various grasses make up the sparse understory along the perimeter of the property. There was no evidence of significant or protected plant species on or adjacent to the property.

There are no wetlands on or adjacent to the site. However, a low area that is on the northerly side of the site supports the growth of Giant Reed, a common freshwater wetland species. The occurrence of this species is most likely due to the infrequent ponding caused during storm conditions.

The site offers minimal wildlife habitat and does not represent a significant environment. Since residential communities and commercial businesses surround the site, species that are sensitive to human activities, such as the red fox, are not common to this location. A variety of small mammals, such as the cotton-tail rabbit, gray squirrel, rats and mice, field birds and song birds are common inhabitants. Endangered or threatened wildlife species are not know to inhabit the subject site. The site does not contain habitat such as streams, ponds, or wetlands that might attract migratory bird species.

2.6 Geology

The Syosset Landfill is located on Long Island, New York within the glaciated part of the Atlantic Coastal Plain physiographic province. Hydrogeologic investigations on Long Island and within the vicinity of the Town of Oyster Bay have been conducted by the United States Geological Survey (USGS) (Isbister 1966; Franke and Cohen 1972). These studies generally agree on the geologic description of the deposits underlying the site. The Syosset Landfill is underlain by more than 1,000 ft of unconsolidated deposits of sand, silt, gravel, and clay which rest unconformably on the bedrock surface. The bedrock is Precambrian in age and consists of crystalline metamorphic and igneous rock (schist, gneiss, and granite). The bedrock surface has a fairly constant slope of approximately 80 ft per mile (1.5 percent) and dips in a southeasterly direction (Isbister 1966). The unconsolidated deposits overlying the bedrock surface have an even gentler slope of 60 ft per mile (Isbister 1966).

The bedrock surface is directly overlain by Late Cretaceous deposits known as the Raritan Formation, which consists of two units or members: the Lloyd Sand Member (Lloyd aquifer) and the clay member (Raritan Clay). Beneath the site, the Lloyd Sand is approximately 240 ft thick and rests unconformably on the bedrock surface; the Raritan Clay is a major regional confining unit which is approximately 160 ft thick and overlies the Lloyd Sand (Isbister 1966).

The Magothy Formation, which is also a late Cretaceous deposit, lies unformably on the Raritan Formation (i.e., Raritan Clay) and is approximately 540 ft thick beneath the site. The Magothy is a regional formation occurring throughout most of Long Island, except locally near the North Shore where erosion has removed parts or all traces of the Magothy and/or Raritan.

The deposits of the Magothy Formation, which are characterized by their light color and fine-grained texture, consist chiefly of interbedded lenses of sand, sandy clay, with varying amounts of silt. The primary mineral of the sandy beds is quartz (angular to subangular) with varying amounts of clay minerals, chert, muscovite, and a small percentage of dark, heavy minerals such as lignite and pyrite. Iron oxide is also found locally abundant.

Although a general value of porosity is frequently assumed to be 30 percent by investigators, Isbister (1966) reports laboratory results from 32 to 41 percent.

Directly above the Magothy Formation lies the Pleistocene outwash deposits known as the Upper Glacial Formation (Upper Glacial aquifer); these deposits are characterized chiefly by stratified coarse sand and gravel. The surface of the Upper Glacial Formation on which the site is situated is known as outwash plain.

2.7 Regional Hydrogeology

Of the three unconsolidated geologic formations underlying the site (Upper Glacial, Magothy, and Raritan), only two are saturated: the Magothy Formation and the Raritan Formation. The Upper Glacial Formation is completely unsaturated in the vicinity of the site. The saturated portion of the Magothy Formation (Magothy aquifer) is the principal source of water for public and industrial use, therefore, most of the hydrogeological discussion will focus on this aquifer. The Lloyd Sand Member of the Raritan Formation is completely saturated (Lloyd aquifer)and is separated (confined) from the Magothy by the Raritan Clay (also saturated), which is a regional aquitard that is approximately 160 ft thick (see Section 2.6). Thus, although the Lloyd aquifer is used for water supply, this aquifer was not investigated because of its depth (approximately 760 ft beneath the site) and the presence of the Raritan Clay (160 ft thick).

2.7.1 Upper Glacial Formation

The Upper Glacial Formation is primarily composed of coarse sand and gravel deposited during the Pleistocene age, which ended approximately 15,000 years ago. These deposits were largely removed from the site due to the excavation (sand and gravel mining) of this material and subsequent filling during its use as a municipal landfill (1933 to 1975). A detailed discussion of. the extent of the landfilling is presented in Section 3.2 (Landfill Dimension Study).

Prior to the mining of the sand and gravel deposits, the Upper Glacial Formation was approximately 60 to 100 ft in depth under the site. Unexcavated portions of this formation are found toward the boundaries of the site and beneath the landfill. The permeability of this formation is generally greater than the Magothy, and it serves as the principal source of precipitation recharge to the Magothy. In areas located in the vicinity of (but beyond) the limits of the site where the Upper Glacial Formation is partially saturated, it is known as the Upper Glacial aquifer. The Upper Glacial aquifer and the underlying Magothy aquifer, are generally considered to be a single hydrogeologic unit as they are directly connected hydraulically (i.e., there is no continuous confining unit [aquitard] between the two aquifers).

2.7.2 Magothy Aquifer

The saturated portion of the Magothy Formation (Magothy aquifer) extends from the water-table surface (which occurs at approximately 100 to 115 ft below land surface) to the Raritan Clay. As stated previously, the Magothy aquifer is composed of fine-grained sediments: Interbedded sequences of sand with sandy clay, silt, and clay are prevalent through the unit. In the study area, the Magothy is directly (hydraulically) connected to the overlying Upper Glacial Formation area as no continuous confining beds (aquitards) are present. The Magothy aquifer is separated from the Lloyd aquifer by the Raritan Clay, a regional, continuous aquitard, which limits the ground-water flow between the two ground-water systems.

As a result of the heterogeneous nature of the Magothy aquifer, the water-transmitting properties can vary widely. Although the horizontal hydraulic conductivity in the Magothy aquifer in the vicinity of the site is reported to be approximately 400 gallons per day per square foot (gpd/ft^2) (McClymonds and Franke 1972), considerable variation is known to occur throughout this formation.

3.0 METHODOLOGY

In this section, the methodologies employed for the tasks in the Interim RI are reviewed. These methods were described in detail in the SOP. Deviations or changes from the SOP protocols are discussed in the appropriate sections.

3.1 On-Site Ground-Water Study

The On-Site Ground-Water Investigation was designed to expand the existing on-site monitoring well network. This network consisted of seven shallow monitoring wells installed during a previous ground-water investigation by ERM (1983) during which leachate impacts to ground water beneath the site had been identified. As discussed in Section 1.0, the on-site wells previously installed under the supervision of ERM were judged to be suitable for

Table [illegible]. Site Studies for the Syosset Landfill.

Report	Author/Organization	Date	Content
Vent Trench Monitoring	Town of Oyster Bay-DPW	1981	Continuous monitoring for methane in vent trench (no report submitted).
Methane Survey of the Syosset Landfill	Town of Oyster Bay-DPW	March 15 to April 3, 1981	Gas samples collected for methane analysis from temporary monitoring points arranged in a grid pattern.
"Landfill Gas Migration"	Malcolm Pirnie, Inc. for for the Syosset Central School District	June 1982	Report presents the findings of the Syosset Landfill and the Syosset Central School property studies. Methane has been found, but not other gases. Reports by NCDH and others are appended to this report.
Methane Survey of the Syosset Landfill	Town of Oyster Bay-DPW	January 3 to February 1, 1983	Gas samples collected for methane analysis from temporary monitoring points arranged in a grid pattern.
"Investigation of Land-fill Impact on Ground-Water Quality"	ERM-Northeast for the Nassau County Dept. of Health (NCDH)	Jan. 1983	Report on study of ground-water conditions at the Syosset Landfill. The investigation included the installation of seven on-site monitoring wells. The report concluded that ground-water quality was being impacted by landfill leachate. Elevated heavy metal concentrations are present in the leachate.
"Preliminary Remedial Action Master Plan (RAMP) for the Syosset Landfill."	C.C. Johnson, Inc./ CDM for the USEPA	May 1983	RAMP report summarizes the previous work done at the Syosset Landfill and forms the basis for the RI/FS.

Table 1: Site Studies for the Syosset Landfill.

Report	Author/Organization	Date	Content
"Capping and Closure of the Syosset Landfill"	Sidney B. Bowne and Son	Dec. 1983	Conceptual design of cap and gas control measures. Includes data on five borings installed through the landfill.
Landfill Migration Study - Updating Supplement	Malcolm Pirnie, Inc. for the Syosset Central School District	Dec. 1983	Review of data and issues on the Syosset Landfill since 1982 report. The report includes testing for non-methane compounds and evaluation of the gas intercept trench.
"Draft Environmental Impact Statement (DEIS) for the Proposed Construction of a 1500 Car Commuter Parking Facility at Landia (Syosset)"	Nassau County Planning Dept.	April 1984	The DEIS summarizes previous work done at the site and assesses potential environmental impacts of the proposed Landia station.
Water-Quality Data (unpublished)	Nassau County	Continuous	NCDH has collected samples from nearby supply wells and the on-site ERM wells.

e 2. Summary of Data for Public Supply Wells Located Within 3 Mi f the Syosset Landfill, Syosset, New York.

Well	Water District	1986 Pumpage (thousands of gallons)	Pump Capacity (gallons per minute)	Formation	Screen Interval (feet below land surface)	Distance from Center of the Site (miles)
N0149	Hicksville	0	616	Magothy	131-151	1.8
N0150	Hicksville	0	540	Magothy	122-142	1.8
N0198	Jericho	321,172	1,100	Magothy	566-616	1.8
N0199	Jericho	289,231	1,120	Magothy	544-600	1.9
N0570	Jericho	277,837	1,000	Magothy	?	2.2
N2072	Hicksville	0	750	Magothy	138-159.25	1.6
N3878	Hicksville	53,947	1,200	Magothy	375-428	2.4
N3953	Hicksville	0	1,200	Magothy	169-213 370.75-418.75	2.4
N4095	Plainview	284,203	1,200	Magothy	440-490	2.9
N4096	Plainview	55,580	1,200	Magothy	444-495	2.9
N4097	Plainview	68,662	1,200	Magothy	413-463	1.9
N4133	Jericho	0	1,000	Magothy	400-450	0.19 *
N4245	Jericho	369,887	1,194	Magothy	525-565	1.4
N4246 a	Jericho	0	1,140	Magothy	403-453	0.48 *
N6076	Plainview	81,885	1,200	Magothy	191.83-253.25	1.9
N6077	Plainview	141,283	400	Magothy	398-459.58	1.9
N6092	Jericho	252,585	1,200	Magothy	561-631	2.9
N6093	Jericho	90,524	1,200	Magothy	546-606	2.9
N6190 b	Hicksville	0	1,200	Magothy	550-600	0.77 *
N6191 b	Hicksville	0	1,200	Magothy	390-451	0.80 *
N6192	Hicksville	53,505	1,400	Magothy	575.16-626.58	3.0
N6193	Hicksville	0	1,400	Magothy	396.33-456.41	2.94
N6580	Plainview	306,029	1,200	Magothy	418.75-495.75	2.1
N6651	Jericho	355,344	1,200	Magothy	560-610	1.3
N7030	Jericho	114,101	1,230	Magothy	480-530	2.8

Data obtained from the NYSDEC offices, SUNY at Stony Brook, New York.

* Measured from the nearest boundary of the landfill.

a Well is reportedly no longer in service due to detection of volatile organic compounds and water main break.

b Well is reportedly used on a part-time basis during periods of high demand.

-- Data not available.

Table 2. Summary of Data for Public Supply Wells Located Within 3 Mile[illegible] the Syosset Landfill, Syosset, New York.

Well	Water District	1986 Pumpage (thousands of gallons)	Pump Capacity (gallons per minute)	Formation	Screen Interval (feet below land surface)	Distance from Center of the Site (miles)
N7526	Plainview	61,967	1,280	Magothy	570-585.5 600.75-611.16 621.19-641.63 661.83-687.75 687.75-690.75	2.68
N7562	Hicksville	372,653	1,400	Magothy	458-519	1.7
N7772	Jericho	221,156	1,220	Magothy	502.75-562.75	2.8
N7773	Jericho	161,543	1,180	Magothy	416.08-476.08	2.8
N7781	Jericho	317,129	1,240	Magothy	394-454	1.5
N8043	Jericho	432,549	1,200	Magothy	515-688.42	1.9
N8249	Hicksville	206,378	1,400	Magothy	299.66-389-58	1.7
N8355	Jericho	100,463	1,200	Magothy	520-570	1.3
N8778	Hicksville	87,657	1,400	Magothy	529-590	2.6
N8779	Hicksville	221,640	1,400	Magothy	524.25-585	2.7
N9180	Hicksville	346,533	1,400	Magothy	545-576 598-630	2.9
N9463	Hicksville	285,657	1,200	Magothy	560-595 603-638	2.5
N9488	Hicksville	136,251	1,380	Magothy	515-575	1.6
N10208	Hicksville	130,848	1,750	Magothy	572-624 634-644	2.7
N10555	Hicksville	0	--	Magothy	608-693	2.4

Data obtained from the NYSDEC offices, SUNY at Stony Brook, New York.

* Measured from the nearest boundary of the landfill.

a Well is reportedly no longer in service due to detection of volatile organic compounds and water main break.

b Well is reportedly used on a part-time basis during periods of high demand.

-- Data not available.

Table 3. Summary of Data for Industrial Wells Located Within 1 Mile o[illegible] Syosset Landfill, Syosset, New York.

Well	Owner	1986 Pumpage (thousands of gallons)	Pump Capacity (gallons per minute)	Formation	Screen Interval (feet below land surface)	Distance from the nearest Boundary of the Syosset Landfill (miles)	Reported Use
N3569	Cerro Wire & Cable Corp.	53,353	1,000	Magothy	353-402	0.08	General
N3834	Geo Spohrer	*	4	Magothy	189-193	0.53	Shop
N3838	Fairchild Camera & Instrument	*	50	Magothy	153-163	0.31	Domestic
N3850	Fairchild Camera & Instrument	*	750	Magothy	400-440	0.25	Fire Protection
N3860	Fairchild Camera & Instrument	*	750	Magothy	400-440	0.31	Fire Protection
N3874	Fairchild Camera & Instrument	*	300	Magothy	310-330	0.26	Industrial
N5354	Geo Spohrer	*	16	Magothy	259-264	0.45	Bathroom
N5901	Certified Redi-Mix Co., Inc.	*	45	Magothy	137-148	0.72	Concrete Mixing
N6531	Riverside Plastics Corp.	*	40	Magothy	114-119	0.65	Air Conditioning
N6741	Cerro Wire & Cable Corp.	115,303	1,000	Magothy	374-424	0.11	General
N7052	Syosset Hospital	*	330	Magothy	223-253	0.68	Air Conditioning
N8436	Riverside Plastics Corp.	*	300	Magothy	159-179	0.84	*
N8517	Great Atlantic Realty Co.	*	130	Magothy	248-273	0.78	Cooling
N9842	Reckson Associates	85,302	350	Magothy	262-297	0.36	*

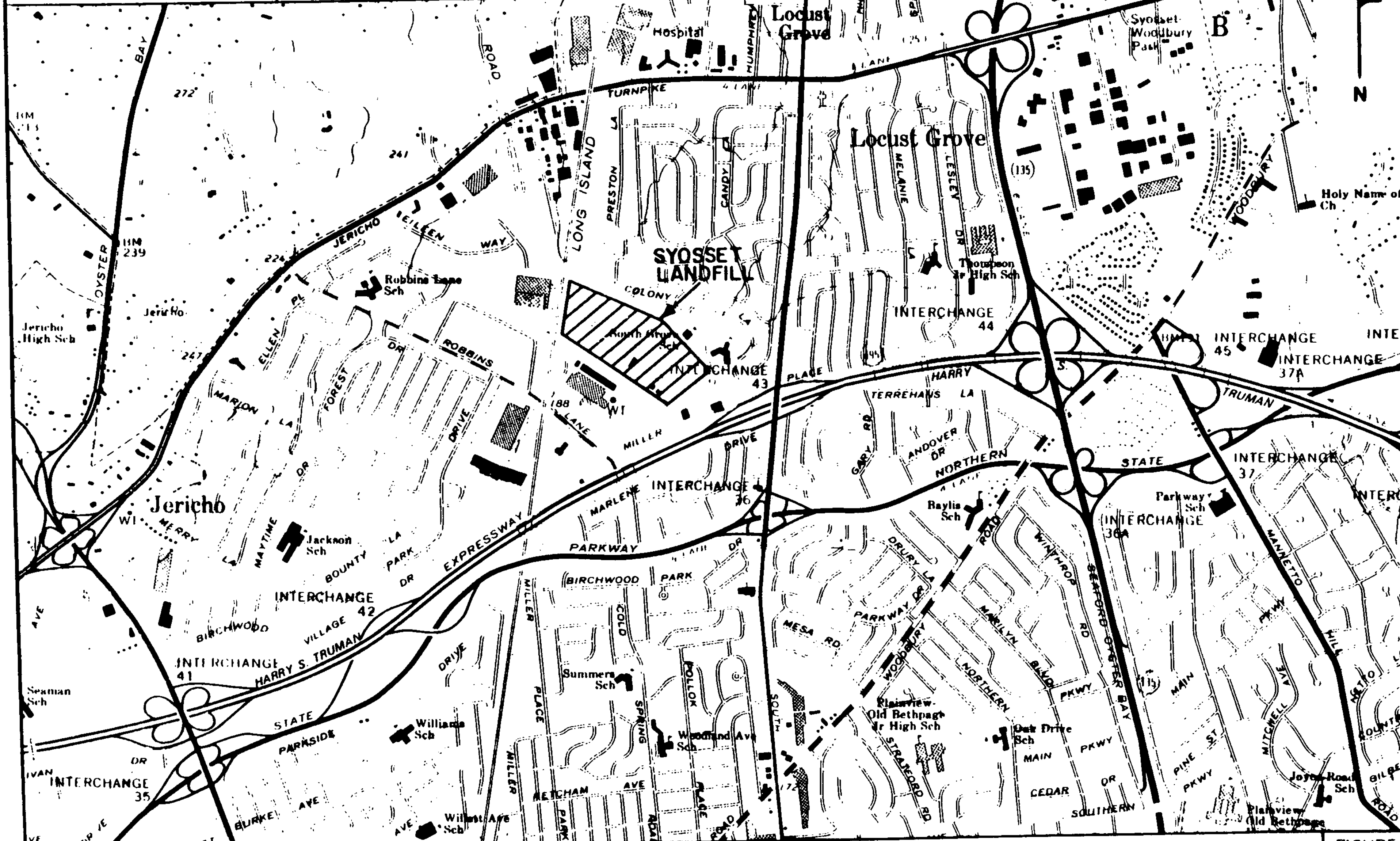
Data obtained from the NYSDEC offices, SUNY at Stony Brook, New York.

Wells included in this table have withdrawals greater than 45 gallons per minute.

* Data not reported to the NYSDEC.

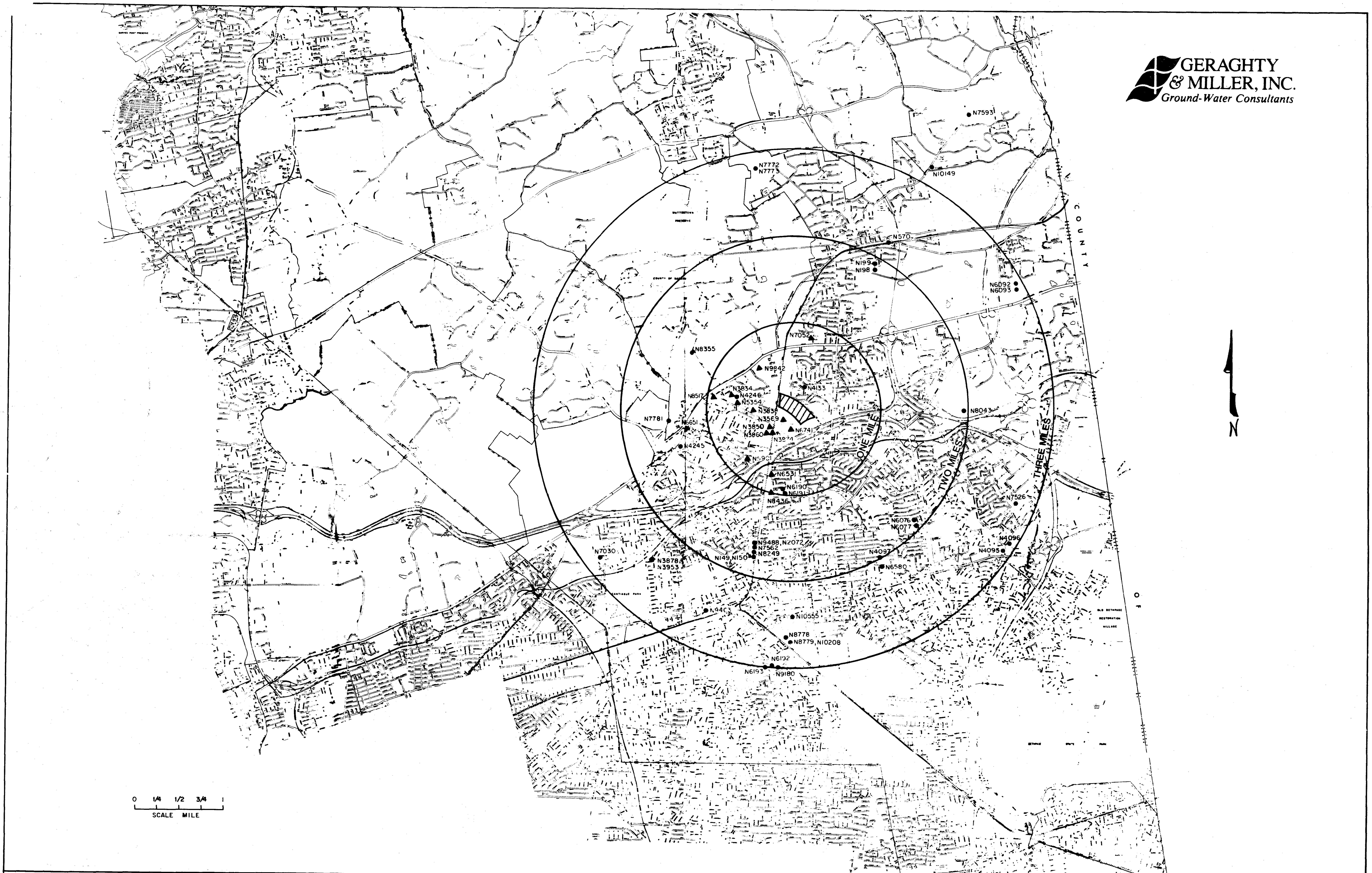
GERAGHTY & MILLER, INC.
Ground-Water Consultants

COMPILED BY: VINCE GLASSER	DATE: 10/88	SCALE: SHOWN	PREPARED FOR: LOCKWOOD, KESSLER & BARLETT, Syosset, New York
PREPARED BY: ELAINE DeLUCA	FILE NO: N03409L03-1115		
PROJECT MGR: VINCE GLASSER			



SUBJECT: SITE LOCATION, Syosset Landfill, Syosset, New York

FIGURE 1



EXPLANATION

N8355 ● PUBLIC SUPPLY WELL AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION WELL DESIGNATION

N7052 ▲ INDUSTRIAL WELL AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION WELL DESIGNATION

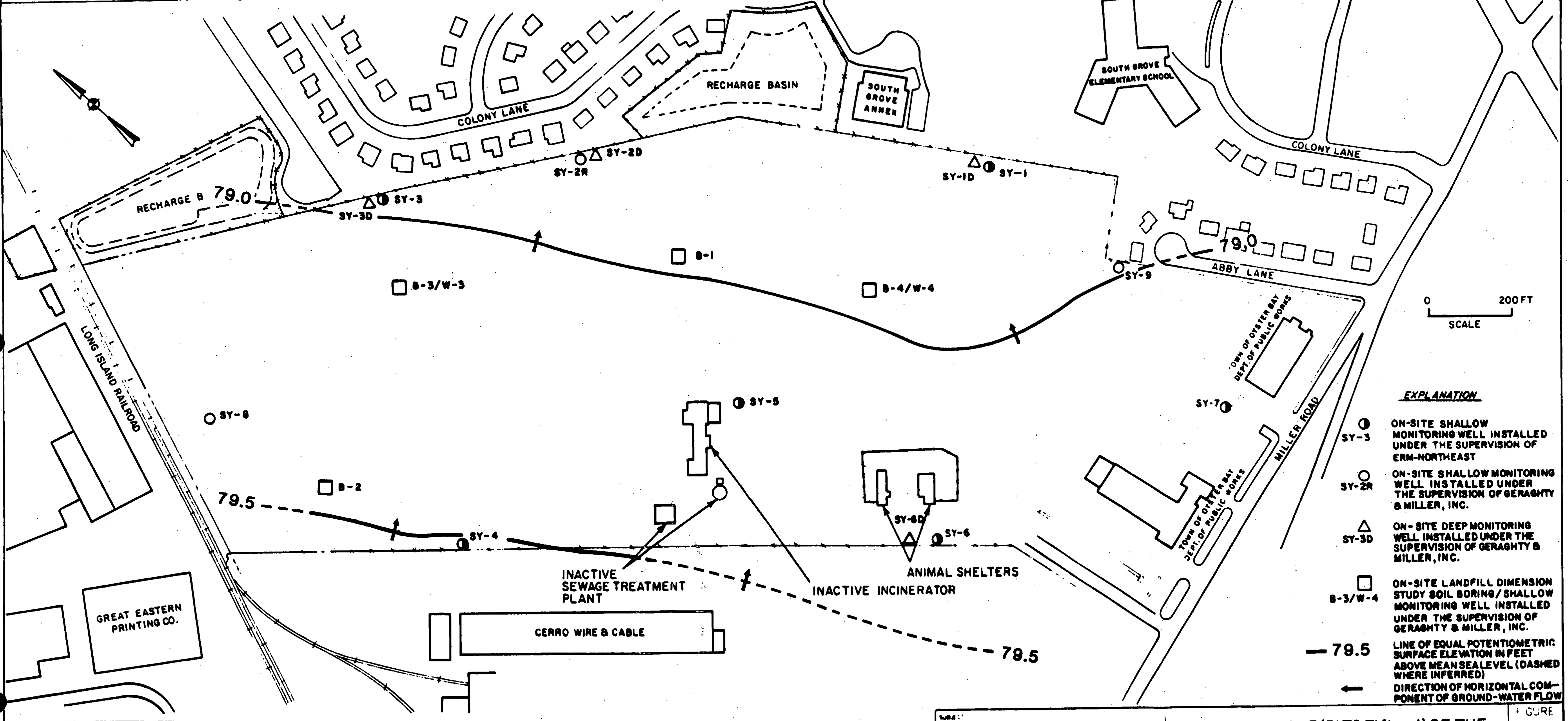
SYOSSET LANDFILL

LOCATIONS OF PUBLIC SUPPLY WELLS WITHIN A 3-MILE RADIUS AND INDUSTRIAL WELLS WITHIN A 1-MILE RADIUS OF THE SYOSSET LANDFILL, SYOSSET, NEW YORK

FIGURE 2

GERAGHTY & MILLER, INC. Ground Water Consultants

V.J. GLASSER	DATE 10/88	SCALE SHOWN	PREPARED FOR LOCKWOOD, KESSLER & BARTLETT INC. Syosset, New York
E. DaLUCA	FILE NO NYO340SL3-1115		
V.J. GLASSER			



SOURCE: LOCKWOOD, KESSLER & BARTLETT, INC. SYOSSET, NEW YORK

POTENTIOMETRIC SURFACE OF THE SHALLOW ZONE (51 TO 71 ft msl) OF THE MAGOTHY AQUIFER ON OCTOBER 27, 1988, Syosset Landfill, Syosset, New York

FIGURE 8

APPENDIX M

REGIONAL BACKGROUND GROUNDWATER QUALITY

APPENDIX M

REGIONAL BACKGROUND GROUNDWATER QUALITY

Groundwater is the sole source of drinking water on Long Island (Nassau and Suffolk Counties). As such, maintaining high quality drinking water is important. When volatile organic compounds, tetrachloroethylene (PCE) and trichloroethylene (TCE), were detected in supply wells in the southeastern part of Nassau County in 1975, the Nassau County Department of Health (NCDH) launched a series of investigations to evaluate regional groundwater quality conditions. One of these studies (Dvirka and Bartilucci Consulting Engineers 1986) was a preliminary investigation of five areas of aquifer segments contaminated with VOCs (New Cassel, Garden City Park, West Hicksville, New Hyde Park, and North Hicksville). During this study, a total of 96 wells were sampled, which included 18 public supply wells. Most of these wells are screened in the Upper Glacial aquifer but many are screened in the Magothy aquifer. VOC contamination was found in all five study areas, and this contamination was characterized as being widespread in three of these areas.

The probable source of the VOC contamination in four of the five study areas was identified as industrial areas near the LIRR tracks. A similar industrial area is present directly adjacent (west) to the LIRR tracks that also border the Syosset Landfill. In the Dvirka and Bartilucci study, the VOC contamination was found at highest concentrations, and most frequently, in the Upper Glacial aquifer, but VOCs were also observed deep in the Magothy (more than 500 feet below land surface). In the New Cassel Study Area, 17 of the 35 wells sampled had concentrations of VOCs exceeding the then current New York State guidelines for organic compounds in drinking water. The principal VOCs detected (i.e. at highest concentrations and frequencies) were 1,1,1-trichloroethane (TCA), PCE, and TCE. In the Garden City Park Study Area, nine of the 17 wells sampled had VOC concentrations exceeding the New York state guidelines with PCE and TCE as the principal VOCs. One well screened in the upper part of the Magothy Formation had total VOC concentrations of approximately 200 ug/L.

Included in the Dvirka and Bartilucci report is a discussion of regional groundwater quality and VOC contamination is described as fairly widespread in Nassau County and considered a major threat to the water supply. VOC data collected between 1976 and 1984 from 434 public supply wells and 437 monitoring wells screening the Upper Glacial, Magothy and Llyod aquifers were obtained by NCDH and included in a table in the Dvirka and Bartilucci report. This table has been reproduced by Geraghty & Miller and is included as Table A-1 (attached). According to this data, of the 434 public supply wells sampled for VOCs, 21 percent had concentrations of up to 10 ug/L, 8 percent had concentrations from 10 ug/L to 50 ug/L, and 3 percent had concentrations greater than 50 ug/L. Of the 437 monitoring wells sampled, 28 percent contained VOC concentrations of up to 10 ug/L, 19 percent contained VOCs at concentrations from 10 ug/L to 50 ug/L, and 18 percent contained VOC concentrations over 50 ug/L.

It was stated in the Dvirka and Bartilucci report "In addition to industrial and commercial waste disposal, an extensive investigation into the uses of toxic household products determined that unsewered residential areas may also be a significant source of organic contamination (i.e., VOCs) of groundwater." The residential area downgradient of the Syosset Landfill is a residential area that was recently sewered about 15 years ago after the landfill closed (Viscardi, pers. comm. 1994). According to the Town of Oyster Bay, the average population density of Syosset is 3,766 people per square mile, or 5.88 people per acre (Rufrano, pers. comm. 1994). The actual population density in the residential development downgradient of the landfill is likely more than 10 people per acre because there is virtually no open space and, based on site visits, the houses are built on quarter-acre lot sizes or less. Therefore, assuming conservatively that there are three houses per acre and four persons residing in each house, then the population density calculates to 12 people per acre.

Five areas of different land use on Long Island located near the regional groundwater divide (long-term sewered suburban, recently sewered suburban, unsewered suburban, agricultural, and undeveloped) were the subject of a recent U.S. Geological Survey (USGS) study to statistically relate shallow contaminant distribution to land use (Leamond and Haefner, et. al 1992). Fourteen of the 19 wells sampled in the recently sewered area (defined in the report as having had sewer hookup beginning about 1980 or approximately 14 years ago) were found to contain VOCs. VOC detections occurred with the highest frequency in the recently sewered study area. The most commonly detected

VOCs were TCA, TCE, and PCE with total concentrations ranging from 2 ug/L to more than 12,000 ug/L. In five of these wells, VOCs were detected at concentrations above 29 ug/L.

Another USGS paper (Cain, Helsel, and Ragone 1989) also evaluates the degradation of regional groundwater quality (especially VOCs) as a result of human activities. Data from studies in six different states, including one on Long Island, New York, were used in the evaluation. All the studies were designed to quantatively relate human activities, expressed as land use, to regional groundwater quality. For the Long Island study, water-quality data from 903 wells screened in the Upper Glacial aquifer were evaluated. The most commonly detected VOCs were TCA (24 percent of wells sampled), PCE (20 percent of wells sampled), TCE (18 percent of wells sampled), chloroform (9 percent of wells sampled) and 1,2-dichloroethylene (5 percent of wells sampled). In commercial or industrial areas, TCE, TCA, and PCE were detected in about 40 percent of wells sampled, while in medium to high-density residential areas, 20 to 40 of the wells sampled contained these VOCs. By using a simple linear regression, the percentage of occurrence of two of the more commonly detected VOCs (TCA and TCE) in the groundwater in the Long Island study were related to population density. This relationship is graphically represented in Figure A-1 and clearly demonstrates a direct correspondence between the two parameters (i.e., as population density increase so does the frequency of detection of VOCs). For example, Figure A-1 shows that with a population density equivalent to Syosset (approximately 12 people per acre) TCA and TCE would be expected to be detected in approximately 50 percent of any group of wells sampled in this area.

In yet another NCDH study, from 1977 to 1986, 46 public supply wells were restricted from use because individual VOCs had been detected above the 1977 New York State Department of Health guideline of 50 ug/L (NCDH 1988). Most of these wells are located in an east-west band across central Nassau County, close to the regional groundwater divide (Proceedings 1993).

In summary, the Syosset Landfill is located adjacent to an industrial area near the LIRR tracks and also adjacent to a recently sewered, densely populated residential area, which is close to the regional groundwater divide in central Nassau County. The investigations cited above were conducted in a setting strikingly similar to Syosset Landfill and the results indicate a similar range in VOC concentrations as those detected at the landfill. Thus, the documented regional degradation of groundwater provides strong supporting evidence that the VOC contamination detected in the Syosset Landfill study area is consistent with the findings of these studies.

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Table M-1. Summary of VOC Data Collected From Public Supply Wells and Monitoring Wells in Nassau County (1976 TO 1984).

	Number of Wells Tested	Percentage of Wells with no Detected VOCs	Percentage of Wells with VOC Concentrations of Less than 10 ug/L for any Single VOC	Percentage of Wells with VOC Concentrations from 10 to 50 ug/L for any Single VOC	Percentage of Wells with VOC Concentrations Greater than 50 ug/L for any Single VOC
<u>Public Supply Wells</u>					
Upper Glacial Aquifer	43	53	30	7	9
Magothy Aquifer	348	69	20	9	2
Lloyd Aquifer	43	79	19	2	0
Subtotal	434	69	21	8	3
<u>Monitoring Wells</u>					
Upper Glacial Aquifer	283	29	31	24	15
Magothy Aquifer	142	44	22	11	23
Lloyd Aquifer	12	83	17	0	0
Subtotal	437	36	28	19	18
<u>Aquifer Composite Totals</u>					
Upper Glacial Aquifer	326	33	31	22	14
Magothy Aquifer	490	62	20	10	8
Lloyd Aquifer	55	80	18	2	0
TOTAL	**871**	**52**	**24**	**14**	**10**

VOCs: Volatile organic compounds.

Note: Percentage of wells with respective VOC concentrations was based on the maximum level of any single VOC which was detected in the last sample collected from each well.
This includes all wells (including abandoned wells) that were sampled for VOCs and benzene, toluene, and xylenes since 1976.

Source: Dvirka and Bartilucci Consulting Engineers (1986) and Nassau County Department of Health.

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APPENDIX N

CORRECTION FACTORS USED FOR GAMMA LOGS

APPENDIX N

CORRECTION FACTORS USED FOR GAMMA LOGS

During the OU-2 RI, two deep well borings (SY-3DD and PK-10D) were drilled by the air-rotary (Barber) method using steel casing. Due to the frictional resistance of drilling these borings to a depth of over 500 feet, several different casing diameters (16-inch, 10-inch, 8-inch, and 6-inch) were required to reach the termination depths of these two well borings. These casings are telescoped within each other with all the casing sizes present in the interval from land surface to the termination depth of the largest casing size (16-inch diameter). When the final depth of each boring was reached (540 feet for Well Boring SY-3DD and 500 feet for PK-10D), only the smallest casing size remained (6-inch diameter casing for Well Boring SY-3DD and 8-inch diameter casing for Well Boring PK-10D). Each well boring was then logged by the natural gamma method using an EG&G Mount Sopris Model II logging system. Mount Sopris, Inc., the manufacturer of the logging system, is owned by Colog, Inc. (Colog), and both companies are located in Golden, Colorado.

According to Colog, steel casing dampens the gamma log response in direct proportion to the wall thickness of the casing. Borehole diameter also dampens the gamma log response (in direct proportion to the diameter), but to a much lesser degree. Adjustments are not routinely made to correct for either casing or borehole diameter interferences, especially when these factors are constant for the depth of the borehole. However, because these factors were not constant due to the telescoped casings, a correction factor was developed for the casing interferences. A correction factor was not used for the borehole diameter because, as noted above, the dampening effect on the gamma log response is not significant for this parameter. According to Colog, computer models have been run by Mount Sopris to quantify correction factors for gamma logs run inside of steel casings of varying thicknesses. Colog informed Geraghty & Miller that computer modeling has also been performed by Mount Sopris to determine correction factors for telescoped casings, and if the telescoped casings are close in diameter (i.e., with less than 2-inches of annular space), then they can be regarded as a single casing. Thus, the composite thickness, which is equivalent to the sum of the thicknesses of each individual casing, was then used to obtain the corresponding correction factor from the attached graph (Figure E-1). A summary of the factors that were used for each interval of telescoped steel casing to correct the gamma logs run in Well Borings SY-3DD and PK-10D is presented in Table E-1. Once the correction factor was determined, it was used as a multiplication factor for the gamma radiation count rate to calculate the adjusted natural gamma log response depicted on Figures 3-1 and 3-2 in the OU-2 RI report.

No correction factor was provided for the depth interval of each well boring that included the 16-inch diameter casing because the annular space between this casing and the next smaller diameter casing (10-inch) is too large (i.e., 4 inches). An annular space of this size causes too many attenuations because the gamma waves cannot penetrate the inner casing (10-inch) properly after penetrating the outer casing (16-inch) and travelling through the annular space. Because the 16-inch diameter casing was used to case off the rather coarse and homogeneous deposits of the Upper Glacial aquifer, the missing data from this zone was not an important factor in preparing hydrogeologic cross sections.

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Table N-1. Correction Factors Used for Well Casing Interferences for Gamma Logs of Well Borings SY-3DD and PK-10D.

Well Boring Number	Depth Interval (ft bls)	Casings Present per Depth Interval (diameter in inches)	Composite Casing Thickness[(a)] (inches)	Correction Factor
SY-3DD	0 - 118	6, 8, 10, 16	1.342	(b)
	118 - 318	6, 8, 10	0.967	3.52
	318 - 462	6, 8	0.602	2.50
	462 - 540	6	0.280	1.62
PK-10D	0 - 118	8, 10, 16	1.062	(b)
	118 - 460	8, 10	0.687	2.75
	460 - 500	8	0.322	1.74

ft bls Feet below land surface.

(a) According to the firm that drilled the well borings, Delta Well and Pump Company, Inc., the thickness of the 16-inch diameter casing, 10-inch diameter casing, 8-inch diameter casing, and 6-inch diameter casing are 0.375 inches, 0.365 inches, 0.322 inches and 0.280 inches, respectively.

(b) No correction factor was provided for the depth interval that included the 16-inch diameter casing in each well boring because the annular space between this casing and the next smaller diameter casing (10-inch) is too large. An annular space of this size causes too many attenuations because the gamma waves cannot penetrate the inner casing (10-inch) properly after penetrating the outer casing (16-inch) and travelling through the annular space.

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APPENDIX 0

JULY 13, 1995 INDUSTRIAL AREA SURVEY MEMO

MEMORANDUM

TO: John Lekstutis, P.E. - Lockwood, Kessler & Bartlett, Inc. (LKB)

FROM: Michael Wolfert - Geraghty & Miller, Inc. MW

DATE: July 13, 1995

SUBJECT: Industrial Area Survey Adjacent to the Syosset Landfill, Syosset, New York

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An historical record search of the 300 Michael Drive property and vicinity has been completed. This search was carried out to determine whether potential sources of the volatile organic compounds found in Well RW-12I exist in the vicinity of the Syosset Landfill. In order to obtain mapped information, a street address had to be specified and, therefore, 300 Michael Drive was selected as the approximate center of our search area. The historical record search consisted of the following specific elements: a review of historical aerial photographs, a review of the New York State Department of Environmental Conservation (NYSDEC) spill log, an environmental regulatory database search, a review of building department documents to identify past owners of properties within a 1/2-mile radius of the target area, a review of Syosset Fire Department records, a review of Sanborn Fire Insurance maps, a site reconnaissance to document current operations within a 1/2-mile radius of the target area, review of information gathered from the Nassau County Department of Public Works concerning waste discharges prior to the installation of the municipal sewer system, and review of data obtained from Freedom of Information Law (FOILs) letters sent to the Nassau County Department of Health. The results of the historical record search are discussed below (see Appendix C for a location map showing some of the properties discussed in this memo).

Aerial Photographs

Aerial photographs of the Michael Drive property taken in 1950, 1957, 1962, 1964, 1966, 1969, 1972, 1978, 1984, 1988, and 1992 were reviewed at the Office of Lockwood, Kessler, and Bartlett, Inc. The 1950 photograph showed no development of the property. The 1957 and 1962 photographs showed slight development of the property. The area becomes more densely developed in the 1964 and 1988 photographs, with the two lagoons associated with the Cerro Wire property observable to the west side of the Town of Oyster Bay animal shelter. The 1992 aerial photograph shows the property as it exists today.

NYSDEC Spill Log

The NYSDEC began keeping records of spills occurring at properties throughout New York State in 1978. A review of the NYSDEC spill log (through 1993) revealed no reported spills on the Michael Drive property; however, eight spills in the vicinity of the property were contained in the spill log. According to the information contained in the spill log, five of the spills have been closed out (indicating that they were addressed and/or remediated to the satisfaction of the NYSDEC). Those five spills each involved no more than 5 gallons of Number 2 fuel oil which spilled on land. Three spills are still considered active. The three active spills involved a 25-gallon spill of heating oil, a 5-gallon spill of heating oil, and a 5-gallon spill of waste oil. All spills were on land surface. A copy of the NYSDEC spill log is attached to this memo (Appendix A).

Environmental Database Search

Environmental Data Resources, Inc. (EDR) of Southport, Connecticut was contracted to obtain federal and state regulatory databases consistent with the site assessment guidelines established by the American Society of Testing and Materials (ASTM). The environmental regulatory databases searched include the National Priorities List, USEPA Hazardous Waste Treatment, Storage, and Disposal facility list, New York State Inactive Hazardous Waste site list, CERCLIS list, Leaking Underground Storage Tank list, Registered Underground Storage Tank list, USEPA Large and Small Quantity Hazardous Waste Generators list. The Michael Drive property does not appear on any of the lists, nor do any adjoining properties. While not an adjoining property to Michael Drive, the Fairchild (now Loral) site on Robbins Lane is on the CERCLIS list. One adjoining property (Cerro Wire and Cable Company) was formerly listed as a Class 2 inactive hazardous waste disposal site by the NYSDEC. A Class 2 site is defined as posing a significant threat to the public or environment. During the past 5 years, the property has been investigated and has undergone remediation. According to the January 1994 Quarterly Status Report of Inactive Hazardous Waste Sites, prepared by the NYSDEC, the status of the Cerro Wire and Cable Company property has been downgraded to a Class 4 site. A Class 4 site is one which has been properly closed, but requires continued management. A copy of the regulatory database list is attached to this memo (Appendix B).

Building Department Review

Records on file with the Town of Oyster Bay Building Department were reviewed to determine current/past ownership of properties located within a 1/2-mile radius of the target property (see attached location sketch [Appendix C]). A list of the past owners of the properties has been developed and is attached (Appendix D). The current tenants of the 26 commercial/industrial parcels of property shown in the location sketch are listed in Table 1 (Appendix E). No records of environmental impact concerning the Michael Drive property or adjacent properties were found at the Building Department. Attached to this memo are copies of Building Department Certificates of Occupancy and a 50-year Chain-of-Title for the 300 Michael Drive property (Appendix F).

As part of the Building Department review, Geraghty & Miller obtained tax map identification numbers for all of the properties identified in the 1/2-mile radius search. With the tax map numbers, Geraghty & Miller was able to determine past ownership (title) of each property going back as much as 40 years. Based on the results of the title search, several properties in the search radius were at one time or another owned by such entities as the U.S. Navy, Metallurgical Processing Corp., Fairchild Instrument Corp., and Great Eastern Printing Co. In addition, at one time a large portion of the radius area was used as an airport (Hicksville Airport). Because of the potential uses of these properties (based on their record of ownership), Geraghty & Miller submitted FOIL requests to the Nassau County Health Department (NCHD) to obtain available records for these properties. These properties are highlighted on the attached location sketch (Appendix C). A discussion of the findings of the FOIL requests is provided later under the section Freedom of Information Law.

Syosset Fire Department

Geraghty & Miller interviewed Mr. Robert Swanson of the Syosset Fire Department to investigate known spills along the Long Island Railroad tracks. Mr. Swanson has worked for the Syosset Fire Department for 30 years and currently holds the position of Fire District Supervisor. According to Mr. Swanson, no chemical spills have occurred on the section of the Long Island Railroad tracks that traverse the target area, i.e. the 1.5-mile stretch of track extending between Jericho Turnpike and Robbins Lane.

Sanborn Fire Insurance Maps

Sanborn Geotechnical Mapping Company found no maps on record for the Michael Drive property or vicinity. Sanborn maps are generally more available for urban areas than surburban areas. The lack of maps for the Michael Drive area indicates they have not mapped the area and bears no relation to existence or absence of environmental problems.

Site Reconnaissance

Geraghty & Miller documented current business operations within a 1/2-mile radius of the target property to the extent amenable to visual confirmation. During the site reconnaissance, numerous unlabelled drums were observed stored outside the building occupied by Ademco at the end of Oak Drive (see map in Appendix C for Oak Drive location). The contents of the drums are unknown as is the purpose of chemical usage by Ademco. No visible evidence of drum spillage or leakage was observed.

Municipal Sewer System

To determine when the area was first connected to the municipal sewer system, Geraghty & Miller contacted Mr. J. Viscardi at the Nassau County Department of Public Works. According to Mr.

Viscardi, in general, the area around Michael Drive and Eileen Way was connected to the municipal sewer system during the years 1987 and 1988. Therefore, discharges that currently enter the municipal system from this area could have been discharged directly into area soils via on-site septic systems and leaching pools prior to 1987/88.

Nassau County Department of Public Works

In an attempt to investigate potential discharges prior to the installation of municipal sewers, Geraghty & Miller contacted the office of Mr. Maurice Osman of the Nassau County Department of Public Works Sewer Division. Mr. Osman is the person who would have knowledge concerning this issue. On Monday, May 8, 1995, Mr. Osman was contacted by telephone. According to Mr. Osman, only one property in the Michael Drive or Eileen Way area has a historical record of non-compliance with regard to chemical usage and disposal. The property is located at 300 Michael Drive (approximately at the center of our search radius). The property is currently owned by Ruser Realty and used by Caligor Hospital Supply Company and New Breed Corporation Integrated Logistical Services. These two operators are operating in compliance with NCDPW. However, during the 1970's when the property was operated by Lyn-Pac Cardboard, Great American Container, and Columbia Container, waste disposal was a constant area of non-compliance.

According to Mr. Osman, on-site operations involved the manufacturing and printing of cardboard boxes. Chemicals used on-site during those operations involved inks, dyes, paints, prewashes, thinners, proof wash and rinses, lubricating oils, and solvents. According to Mr. Osman, the site operators reportedly used a hold and haul method of waste disposal. When the area was connected to the sewer system, the operators applied to discharge their waste to the sewer, but the NCDPW refused to accept their waste unless it was pretreated. According to Mr. Osman, the operators never implemented a pre-treatment system and continued with the hold and haul method until they ceased operation on the site some time in the 1980s.

According to Mr. Osman, whenever he inspected the property, there were typically housekeeping issues of non-compliance such as outside chemical storage and soil staining in the area where chemicals were stored. We are currently attempting to obtain analytical data on this property from Mr. Osman.

Freedom of Information Law

As a result of our FOIL requests (Bureau of Environmental Management and Bureau of Environmental Engineering files), we visited the NCHD on May 16,1995. Review of the NCHD records revealed the following:

- Metallurgical Processing Corp., 180 Michael Drive, Syosset.
  - Metallurgical Processing Corp. conducted a heat treating and plating operation on-site. Cd, Cr, Cu, Fe, Ni, Zn, Chlorine, Cyanide, Fluorides, Sulfides, and Tin were utilized in the processes conducted on-site and were analyzed for in discharge. There was no information on file in reference to any other chemicals being utilized on-site.
  - April 16, 1979 NYSDEC deleted the SPDES permit for Metallurgical Processing because they were no longer discharging to the sewers.
  - September 20, 1978 Plating operation terminated & equipment and chemicals to be moved to S.Plainfield, NJ.
  - August 16, 1978 NCHD noted chemical water on floors, plant grounds in poor condition, and carboys (large containers of liquid) of acid stored in open drums containing waste sludge and drums were beginning to leak.
  - Discharge flow rates & chemical analysis data from 1973 to 1978.
  - Business closed from November 1976 to October 1977 and June 1978 to December 1978 (reason for closing not indicated).
  - April 17, 1975 SPDES permit issued NY0076244 for discharge to sewer. There was no information in the file in reference to the where the water was discharged prior to this permit.
  - 1-21-75 and 1-16-78 NYSDEC Inspection form reported that treatment facility was in poor condition and sloppy housekeeping.
  - September 13, 1967 Storm water and cooling water is going to be disposed of by 4 existing leaching pools when the waste treatment facility is constructed. Not clear if treated wastewater was also to be discharged to leaching pools.

- Emro Dry Cleaners, 235 Robbins Lane, Syosset.

  - A 275-gallon aboveground outdoor fuel oil tank was registered and approximately 100-gallons (average quantity) of Tetrachloroethene (Perchloethylene), which is stored inside the building, was also registered with the Nassau County Department of Health on July 9, 1990.
  - There was no information on file in reference to when Tetrachloroethene (Perchloethylene) was initially stored on-site.

- Pax Surface Chemical, Inc., 235A Robbins Lane, Syosset.

  - Chemical Storage area within building. The following chemicals and their average quantity were registered with the Nassau County Department of Health on August 17, 1992: D-Tarnich 1364, 25-gallons; Paxstrip 530, 25-gallons; Paxtique 1401, 10-gallons; Paxtique 1420, 20-gallons; Paxbrite 408, 150-gallons; Chemseal 330, 5-gallons; Chemmax 836, 220-gallons; Anionic Surfactant 4, 40-gallons; Ethylenediamine, 40-gallons; Sulfuric Acid, 10-gallons; Ammonium Hydroxide, 30-gallons; Acetic Acid, 10-gallons; Phosphoric Acid, 10-gallons; Nitric Acid, 25-gallons; Hydrogen Peroxide (33%), 4-gallons; and Hydroyacetic Acid, 20-gallons.
  - There was no information on file in reference to when the chemicals were initially stored on-site.

- Space Machine Corp., 233-5 Robbins Lane, Syosset.

  - Space Machine Corp. performs metal machining operations and utilizes VOCs for cleaning fluid in their normal operations.
  - May 20, 1986 cleanup accomplished (soil excavated and disposed), but adjacent sites may be contaminated. Groundwater not investigated.
  - January 21, 1986 soil collected from three soil borings drilled in front of the rear entrance to the building as part of a Remedial Investigation. Concentrations of 1,1-DCA, 1,1,1-TCA, PCE, and toluene were detected at levels of 2700, 250000, 2300, and 12000 parts per billion (ppb), respectively.
  - April 22, 1985 NCHD sampled soil behind building and discovered high concentrations of 1,1-DCA, 1,1,1-TCA, Toluene, and PCE, at 380000, 67000, 14000, and 9700 ppb respectively. Other solvents and vocs were detected.
  - Company utilized 1,1,1-TCA as a degreaser. There was no information on file in reference to when chemical was initially stored on-site.
  - Contamination was detected at 21 feet below grade at 10 ppb for 1,1,1-TCA.

- Spiegel Associates, 225 Robbins Lane, Syosset.

  - On January 7, 1987, soil removed and 1,1-DCA, 1,2-DCE, ,1,1,1-TCA, PCE, methylene chloride and benzene were detected in the base of the excavation at 16, 10, 28, 5, 120, and 31 ppb respectively.
  - Spiegel Associates property was an unoccupied warehouse facility. There is no evidence that Spiegel caused the contamination as per a letter from the Nassau County Department of Health dated June 11, 1986.

- LKB, 1 Aerial Way, Syosset.

  - A 3000-gallon fuel oil UST was registered on 6/29/92 and removed on 7/16/92; no contamination noted.

- Bertan Associates, Inc., 3 Aerial Way, Syosset.

  - Bertan Associates, Inc. is an electronics company manufacturing high voltage power supplies. Utilized Chlorothane, Chlorothene, MEK, and TCE to clean the component parts. A maximum of 30-gallons of waste Chloroethene was produced per month on-site as documented to the Nassau County Department of Health on August 23, 1983. This waste was collected by Atlas Assoc. The average quantity on hand of MEK and TCE was 5-gallons and 30-gallons respectively as per a document dated February 15, 1977.
  - There was no other information on file in reference to chemical storage or waste disposal practices.

- Great Eastern Printing Co., Inc., 7 Aerial Way Syosset.

  - Hooked up to sewer in 1981.
  - Utilized photographic developers, fixers, etc.

- Centroid Inc., 3 Aerial Way, Syosset.

  - The following chemicals and average quantities stored indoors were registered with the Nassau County Department of Health in January 1987: Freon, 50-gallons; 1,1,1-TCA, 50-gallons; MEK, 50-gallons; Methylene Chloride, 50-gallons; waste Freon, 50-gallons; waste TCA, 50-gallons; waste MEK, 5-gallons; and waste Methylene Chloride, 50-gallons. The waste is reportedly picked up by Chemical Pollution Control.
  - Manufactured electronic components. There was no information on file in reference to when chemical was initially stored on-site.

- PMI Motors, 5 Aerial Way, Syosset.

  - PMI Motors manufactures electric motors on-site.
  - In 1977, information on the following chemicals and average annual usage was given to the Nassau County Department of Health: Methylene Chloride, 1320-gallons and 1,1,1-TCA, 250-gallons. These chemicals were used as degreasers and cleaners. The drums of these waste solvents were taken to Photocircuits in Glen Cove for disposal.
  - There was no information on file in reference to when chemicals were initially stored on-site.

- Chemo, 7 Aerial Way, Syosset.

  - 1977 Chemicals used on-site Isopar, fixers, developers, Solvent 10-20, and Toluol.

- Loral Fairchild Systems, 300 Robbins Lane, Syosset.

  - Numerous chemicals used on-site.
  - Processed waste water re-routed to NC Sewers in September 1979. Prior to that it was put into a recharge basin.
  - SPDES permit March 1975.

Review of the NCHD Bureau of Environmental Engineering records for:

- Kliegl Bros. Universal Electrical Stage Lighting Co., Inc. 5 Aerial Way, Syosset.

  - Air emission permit for on-site emissions.

- Great Eastern Printing Co., Inc., 7 Aerial Way Syosset.

  - NYSDEC Process Exhaust or Ventilation System form for printing presser and folding machines.

- PMI Motors, 5 Aerial Way, Syosset.

  - 1984 Application for a spray booth.
  - 1978 Air permit for facing lathes.

Additional information gained from this file search is contained in Appendix G. Data on each property is separated from the next property by colored sheets of paper.

FINDINGS AND CONCLUSIONS

1. Analysis of groundwater samples collected from Monitoring Well RW-12I in November and December 1993 indicated total volatile organic compound (VOC) concentration ranging from 144.5 to 259.7 parts per billion (including replicates). Of this total, tetrachloroethene (PCE) made up nearly half of the total and 1,1,1-trichloroethane (1,1,1-TCA) was the compound with the next highest concentration.

2. Review of the information contained in this memo and attached appendices (especially Appendix G) indicates that the following sites have used, are using, or have had discharges of PCE and/or 1,1,1-TCA:

   - Emro Dry Cleaners - store PCE onsite.
     235 Robbins Lane, Syosset

   - Space Machine Corp. - had discharge(s) of 1,1,1-TCA and PCE based on soil analytical results.
     233-5 Robbins Lane, Syosset

   - Spiegel Associates - had discharge(s) of 1,1,1-TCA based on soil analytical results.
     225 Robbins Lane, Syosset

   - Centroid - used 1,1,1-TCA onsite.
     3 Aerial Way, Syosset

   - PMI Motors - used 1,1,1-TCA onsite.
     5 Aerial Way, Syosset

3. All the above locations are currently generally hydraulically upgradient of the Syosset Landfill and Monitoring Well RW-12I and they would also have been upgradient when Public Supply Well N4223 (located north of Syosset Landfill) was in operation.

4. In general, except as specifically noted elsewhere in this memo, the industrial area around the Syosset Landfill was not sewered until the 1980s and, therefore, wastewater discharges prior to this time would have likely gone directly to the subsurface via septic system leaching fields, cesspools, and dry wells. Moreover, Dvirka and Bartilucci Consulting Engineers, Inc. (1986) studied five areas of aquifer segments contaminated with VOCs (New Cassel, Garden City Park, West Hicksville, New Hyde Park, and North Hicksville). The probable source of the VOC contamination in four of the five study areas was identified as industrial areas near the LIRR tracks. A similar area is present directly adjacent (west) to the LIRR tracks that also border the Syosset Landfill. In the Dvirka and Bartilucci study, the VOC contamination was found at highest concentrations, and most frequently, in the Upper Glacial aquifer, but VOCs

were also observed deep in the Magothy (more than 500 feet below land surface). The principal VOCs detected (i.e., at highest concentrations and frequencies) were 1,1,1-trichloroethane (TCA), PCE, and TCE. Included in the Dvirka and Bartilucci report is a discussion of regional groundwater quality and VOC contamination is described as fairly widespread in Nassau County and considered a major threat to the water supply. It was stated in the Dvirka and Bartilucci report, "In addition to industrial and commercial waste disposal, an extensive investigation into the uses of toxic household products determined that unsewered residential areas may also be a significant source of organic contamination (i.e., VOCs) of groundwater."

5. Based on the above, it appears that one or more of the above facilities could have contributed to the elevated levels of VOCs in Well RW-12I.

6. Although less is known regarding details of 300 Michael Drive as compared to the five properties mentioned above, based on the descriptions of site activities at 300 Michael Drive discussed above and its proximity to Syosset Landfill and Well Cluster RW-12, this property should also be considered as a potential source of the elevated levels of VOCs in Well RW-12I.

7. Geraghty & Miller contacted Adam Shisgal from the Bureau of Water Supply Protection of the Nassau County Health Department in reference to two properties. The Centroid Inc. file in Bureau of Water Supply Protection contained three letters dated September 7, 1988, September 9, 1988, and September 12, 1988 which discussed that Centroid Inc. was connected to the public sewers on April 25, 1984 by Orchard Sewer Corporation. The other file (Auto Collision, 233A Robbins Lane) could not be located, but Mr. Shisgal stated that this file contained the sewer connection date of November 14, 1983 and an inspection on July 20, 1990. Additional information has been requested from Mr. Osman on 300 Michael Drive. An addendum to this memo will be prepared if additional information is obtained.

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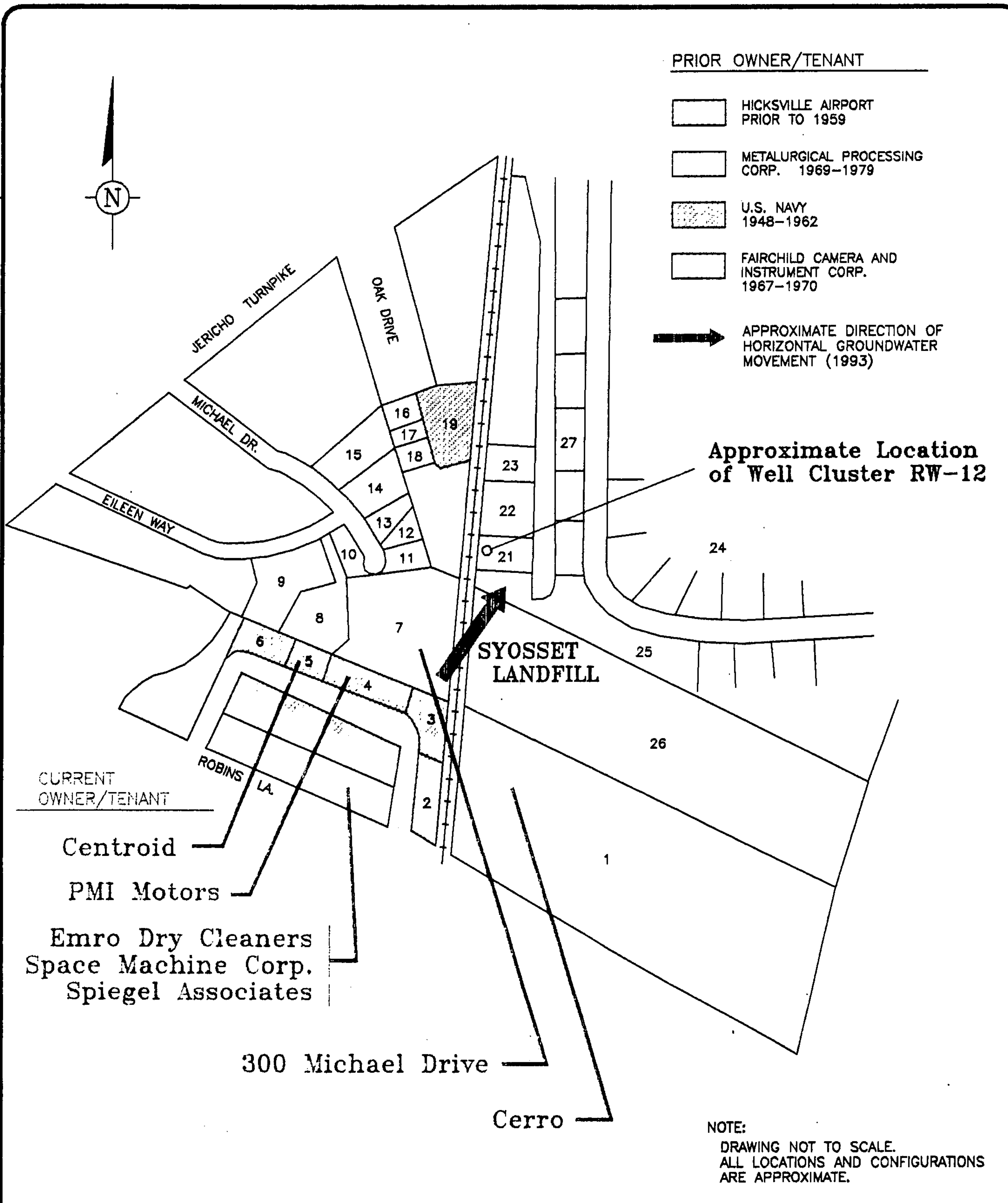

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

PROPERTY OWNERS/TENANTS IN THE VICINITY OF THE SYOSSET LANDFILL

FIGURE

DWG ...E: 13JUL95 | PRJCT NO.: NY0029008 | HARD FILE: 1584 | DRAWING: F. JWNR | CHECKED: M.WOLFERT | APPROVED: M.WOLFERT | DRAFTER: W. CIO

Geraghty & Miller, Inc.
Spill Log Table

PAG
DATE: 10
TIME: 11

e	Spill #	Location	Spill Type	Qty.(Gals)	Cause	Affected Area	Status
12/06/93	9310823	NY Savings Bank 200 OAK DRIVE SYOSSET	Waste Oil	5.00	Housekeeping	On Land	A
11/28/90	9009675	Vector Vacuum 60 OAK DRIVE SYOSSET		0.00	Human Error	Groundwater/water body	C
01/19/88	8708913	Stomins Oil 70 GREAT OAK DRIVE MANHASSET	# 2 Fuel	3.00	Human Error	Groundwater/water body	C
09/14/87	8704943	UPA Technology 60 OAK DRIVE SYOSSET	# 2 Fuel	0.00	Tank failure	Groundwater/water body	C

4 Spills Listed

Search Criteria: Region: 1 Nassau

Location(s): Oak Drive

human error

1/19/93 9304646 Roadway Express 140 Gordon Drive 25 gal land A

9/03/90 9006350 UNK 5 Aerialway Deliberate on land A

1/10/90 8909745 APA 7 " " Diesel 5 gal. unknown on land C

2/16/89 8808962 LKD 1 " " #2 Tank overfill Land C

The EDR-Radius Map / Plus™ Report

Syosset Project
Michael Dr.
Town of Oyster Bay, NY 11791

Inquiry Number: 056852.1r

September 28, 1994

EDR Environmental Data Resources, Inc.

Creators of Toxicheck®

The Source For Environmental Risk Management Data

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Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Facsimilie: 1-800-231-6802

THE EDR-RADIUS MAP™

The EDR-Radius Map™ is a screening tool which maps sites with potential or existing environmental liabilities. Specified government databases are searched in accordance with the ASTM Standard (E 1527) or custom specifications provided by the user.

The EDR-Radius Map™ includes the following three maps:

Topographic Map:

- displays a two mile radius around the target property
- displays the United States Geological Survey (USGS) topographic contours and selected road features (i.e., major street names, and hydrographic data)

Overview Map:

- displays a one-mile (ASTM Standard) or customer specified radius around the target property
- includes major geographic attributes available in EDR's computer mapping system (i.e., street names, available hydrography)

Detail Map:

- displays a quarter-mile radius or customer specified radius around the target property and provides the user with a close-up view
- includes all geographic attributes available in EDR's computer mapping system (i.e., street names, address ranges)
- helps the user locate "orphan" sites, those sites with insufficient address information such that they can only be identified as within the zip code, city, or county of the target property

Please call EDR's Nationwide Customer Service at
1-800-352-0050 (8am - 8pm EST)
with questions or comments about your report.

Thank you for your business!

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM RECORDS:

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA/NTIS
Telephone: 703-416-0702
CERCLIS: Comprehensive Environmental Response, Compensation and Liability Information System; Source: United States Environmental Protection Agency (USEPA). CERCLIS contains information on sites identified by the USEPA as abandoned, inactive or uncontrolled hazardous waste sites which may require cleanup.

Date of Government Version: 06/30/94 — Date of Data Arrival at EDR: 07/19/94
Date Made Active at EDR: 09/20/94 — Elapsed ASTM days: 63

ERNS: Emergency Response Notification System
Source: EPA
Telephone: 202-260-2342
ERNS: Emergency Response Notification System: Source: USEPA and the National Reponse Center of the US Coast Guard. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/93 — Date of Data Arrival at EDR: 04/11/94
Date Made Active at EDR: 05/25/94 — Elapsed ASTM days: 44

NPL: National Priority List
Source: EPA
Telephone: 703-603-9027
NPL: National Priorities List (Superfund); Source: USEPA. The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program.

Date of Government Version: 01/10/94 — Date of Data Arrival at EDR: 01/26/94
Date Made Active at EDR: 03/09/94 — Elapsed ASTM days: 42

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 202-260-3393
RCRIS: Resource Conservation and Recovery Information System; Source: USEPA. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 03/31/94 — Date of Data Arrival at EDR: 04/26/94
Date Made Active at EDR: 07/20/94 — Elapsed ASTM days: 85

FEDERAL NON-ASTM RECORDS:

FINDS: Facility Index System
Source: EPA/NTIS
Telephone: 800-908-2493
FINDS: Facility Index System; Source: USEPA. FINDS contains both facility information and "pointers" to other sources that contain more detail. These include: RCRIS, PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]), CERCLIS, DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all envionmental statutes), FURS (Federal Underground Injection Control), FRDS (Federal Reporting Data System), SIA (Surface Impoundments), CICIS (TSCA Chemicals in Commerce Information System), PADS, RCRA-J (medical waste transporters/disposers), TRIS and TSCA.

Date of Government Version: 09/14/93 — Date of Next Scheduled Update: 10/17/94

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3992
PADS: PCB Activity Database; Source: USEPA. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/17/94 Date of Next Scheduled Update: 09/19/94

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-260-2810
RAATS: RCRA Administration Action Tracking System; Source: USEPA. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA.

Date of Government Version: 04/06/94 Date of Next Scheduled Update: 11/07/94

TRIS: Toxic Chemical Release Inventory System
Source: EPA/NTIS
Telephone: 202-260-2320
TRIS: Toxic Release Inventory System; Source: USEPA. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/91 Date of Next Scheduled Update: 10/03/94

TSCA: Toxic Substances Control Act
Source: EPA/NTIS
Telephone: 202-260-1444
TSCA: Toxic Substances Control Act; Source: USEPA. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site. USEPA has no current plan to update and/or re-issue this database.

Date of Government Version: 05/15/86 Date of Next Scheduled Update: 09/19/94

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
HMIRS: Hazardous Materials Incident Report System; Source: United States Department of Transportation (DOT). HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/30/93 Date of Next Scheduled Update: 12/06/94

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-260-3733
NPL LIENS: Federal Superfund Liens; Source: USEPA. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing if filed notices of Superfund Liens.

Date of Government Version: 10/15/91 Date of Next Scheduled Update: 11/27/94

STATE OF NEW YORK ASTM RECORDS:

LUST: Spills Information Database
Source: Department of Environmental Conservation
Telephone: 518-457-2462
LUST: Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/15/94
Date Made Active at EDR: 07/05/94
Date of Data Arrival at EDR: 06/22/94
Elapsed ASTM days: 13

SHWS: Inactive Hazardous Waste Disposal Sites in New York State
Source: Department of Environmental Conservation
Telephone: 518-457-0747
SHWS: State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 04/30/93
Date Made Active at EDR: 09/17/93
Date of Data Arrival at EDR: 07/08/93
Elapsed ASTM days: 71

SWF/LS: Facility Register
Source: Department of Environmental Conservation
Telephone: 518-457-7336
SWF/LS: Solid Waste Facilities/Landfill Sites. SWF/LS type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/01/94
Date Made Active at EDR: 04/20/94
Date of Data Arrival at EDR: 04/04/94
Elapsed ASTM days: 16

UST: Petroleum Bulk Storage (PBS, CBS, MOSF) Database
Source: Department of Environmental Conservation
Telephone: 518-457-4351
UST: Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Information in NEDIS varies by state program.

Date of Government Version: 06/27/94
Date Made Active at EDR: 08/17/94
Date of Data Arrival at EDR: 06/30/94
Elapsed ASTM days: 48

Historical and Other Database(s)

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc.

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The information contained in this report has predominanantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

MANUFACTURED GAS PLANT (Coal Gas) SITES

Prior to the widespread use of natural gas, combustible gas manufactured from coke, coal and oil served as the major fuel for urban heating, cooking and lighting in the U.S. for over 100 years. Beginning in 1816, manufactured gas or "town gas" was produced at thousands of plant sites throughout the United States. Pipeline distribution of natural gas during the 1950s rapidly replaced manufactured gas as the major gaseous fuel. As a result, manufactured gas production gradually came to an end through the 1950s and 1960s.

Along with the production of large volumes of gas, manufactured gas plants also yielded large quantities of by-products during their operation, including complex mixtures of coal tars, sludges, oils and other chemicals. Coal tar was the principal by-product from the gasification process. Although some of the coal tars were refined into a variety of marketable products, substantial volumes remained unused and were considered as waste. Coal tar and other waste products from the gasification plants were frequently disposed on the plant site in unlined pits or in some cases injected underground through injection wells. These practices have left behind subsurface coal tar contamination at many former manufactured gas plant (MGP) sites.

Coal tar is the waste of primary concern at MGP sites. Coal tars are relatively dense, viscous liquid mixtures. The composition of coal tar varies but is usually a mixture of the following:

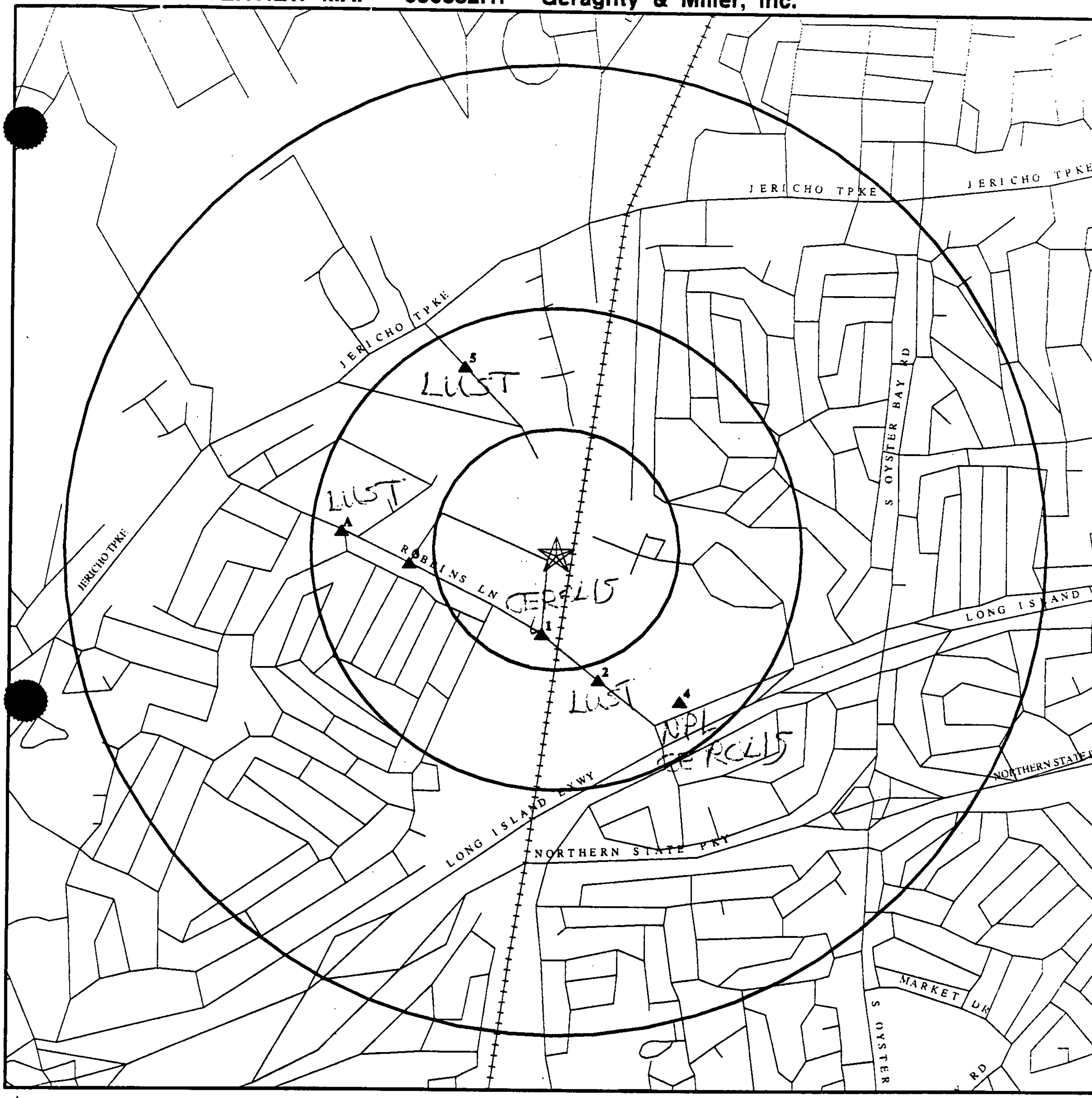
- Polycyclic aromatic hydrocarbons (PAH), such as benzo-pyrene, naphthalene, anthracene, acenaphthene and phenanthrene.
- Phenolic compounds, including phenol and methylphenols.
- Light aromatic compounds, such as benzene, toluene and xylenes.
- Miscellaneous organics, such as dibenzofuran.
- Small quantities or inorganic chemicals, such as iron, lead, copper, zinc, various sulfides, cyanides and nitrates.

Coal tar is somewhat heavier than water and tends to migrate vertically downward in the subsurface until it encounters a stratum that it cannot permeate. There it resides in an immobile state or spreads slowly. It can then serve as a continuous source of groundwater contamination in that PAH and other constituent compounds are slowly solubilized. Coal tars in the subsurface at MGP sites have persisted for decades because they are sparingly soluble, resistant to biodegration and they move slowly through porous media. The problem of coal tars in the subsurface at old MPG sites represents a significant part of the general problem of subsurface contamination with dense organic liquids in the United States.

The residue from former MGP sites often contains significant amounts of hazardous substances which can cause contamination of both soil and groundwater. A number of these sites are already included on EPA's CERCLIS list and the hazardous waste site lists of many states. Individual site cleanup costs have been estimated in the million dollar plus range.

The information included in EDR's "Former Manufactured Gas Plant Site" Database is provided under exclusive license by Real Property Scan, Inc. The information in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins on any site. This report does not constitute a legal opinion.

OVERVIEW MAP - 056852.1r - Geraghty & Miller, Inc.



★ - Indicates TARGET PROPERTY.

▲ - Indicates environmental elements at elevations higher than or equal to the target property.

◆ - Indicates environmental elements at elevations lower than the target property.

- Coal Gasification Sites (if requested)

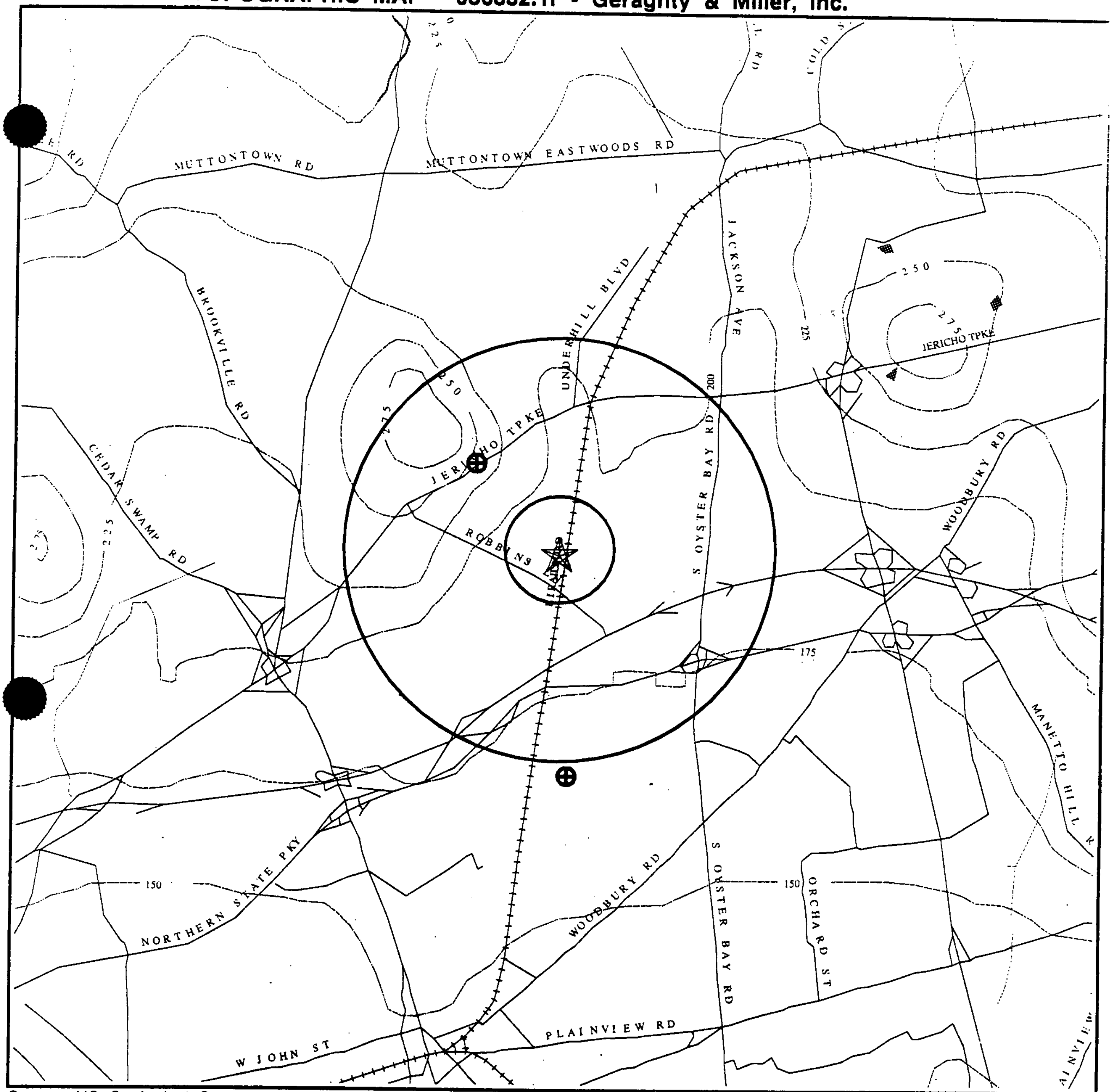
National Priority List Sites

0 1/4 1/2 1
Miles

N

TARGET PROPERTY:	Syosset Project	CUSTOMER:	Geraghty & Miller, Inc.
ADDRESS:	Michael Dr.	CONTACT:	Bill Holubowich
CITY/STATE/ZIP:	Town of Oyster Bay NY 11791	INQUIRY #:	056852.1r
LAT/LONG:	40.8000 / 73.5155	DATE:	September 27, 1994

TOPOGRAPHIC MAP - 056852.1r - Geraghty & Miller, Inc.

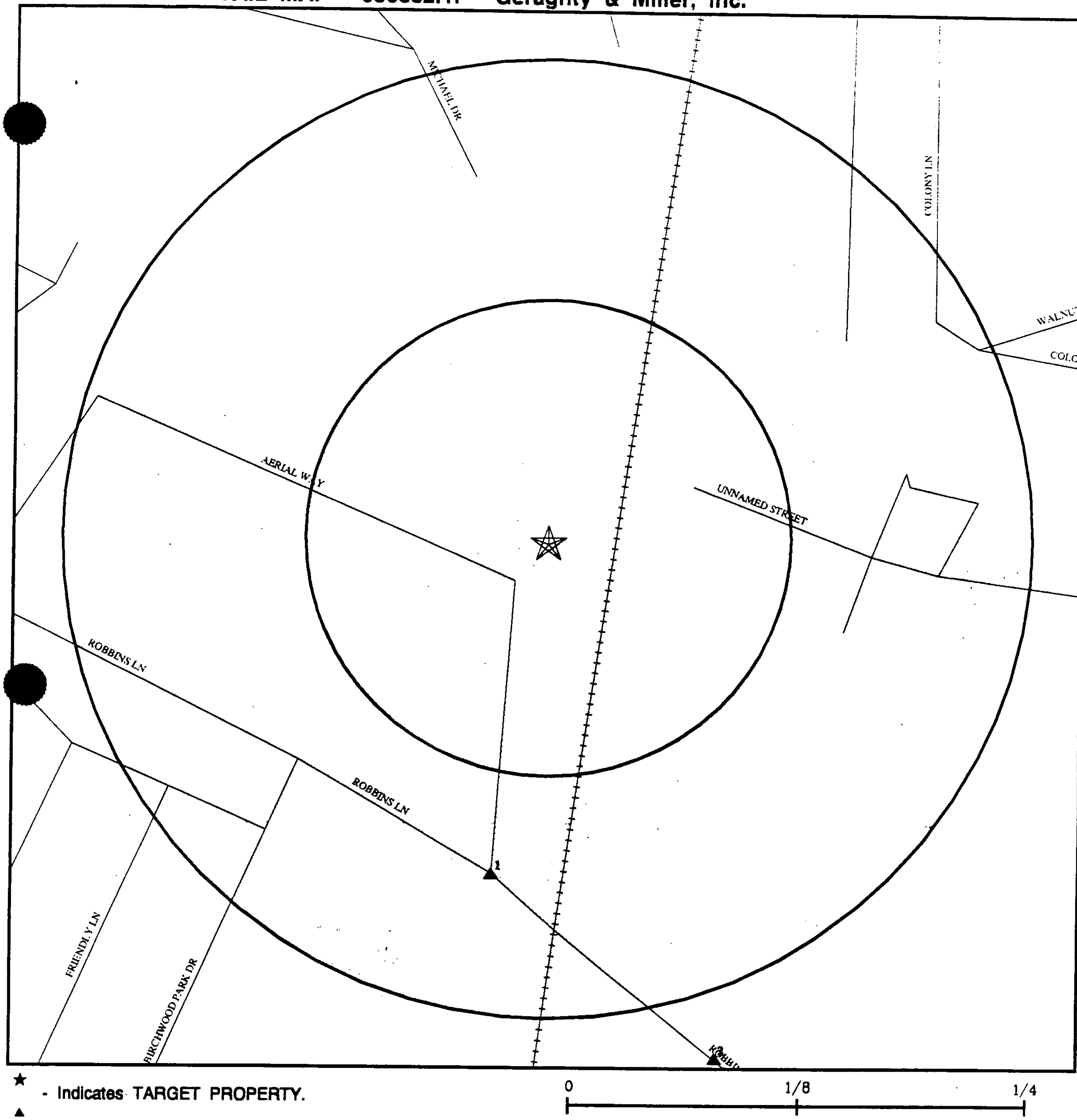


Source: US Geological Survey 1-Degree Digital Elevation Model
Compiled 09/15/92

- Major Roads
- Contour lines (25 foot interval unless otherwise shown)
- Waterways
- Indicates closest well in quadrant to target property.

TARGET PROPERTY:	Syosset Project	CUSTOMER:	Geraghty & Miller, Inc.
ADDRESS:	Michael Dr.	CONTACT:	Bill Holubowich
CITY/STATE/ZIP:	Town of Oyster Bay NY 11791	INQUIRY #:	056852.1r
LAT/LONG:	40.8000 / 73.5155	DATE:	September 27, 1994

DETAIL MAP - 056852.1r - Geraghty & Miller, Inc.



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- Coal Gasification Sites (if requested)

- National Priority List Sites

TARGET PROPERTY:	Syosset Project	CUSTOMER:	Geraghty & Miller, Inc.
ADDRESS:	Michael Dr.	CONTACT:	Bill Holubowich
CITY/STATE/ZIP:	Town of Oyster Bay NY 11791	INQUIRY #:	056852.1r
LAT/LONG:	40.8000 / 73.5155	DATE:	September 27, 1994

MAP FINDINGS SUMMARY SHOWING ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	1	0	NR	1
RCRIS-TSD		1.000	0	0	0	0	NR	0
State Haz. Waste		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	1	1	NR	NR	2
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	5	NR	NR	5
UST		0.125	0	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.125	0	NR	NR	NR	NR	0
RCRIS Lg. Quan. Gen.		0.125	0	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS SUMMARY SHOWING
ONLY SITES HIGHER THAN OR THE SAME ALTITUDE AS TP

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	1	0	NR	1
RCRIS-TSD		1.000	0	0	0	0	NR	0
State Haz. Waste		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	1	1	NR	NR	2
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	5	NR	NR	5
UST		0.125	0	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.125	0	NR	NR	NR	NR	0
RCRIS Lg. Qúan. Gen.		0.125	0	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

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1 South 1/8-1/4 Higher	FAIRCHILD INSTRUMENT CORP 300 ROBBINS LANE SYOSSET, NY 11791	CERCLIS FINDS	1000354423 NYD980754709

CERCLIS Classification Data:
Site Incident Category: Not reported
Ownership Status: OTHER
EPA Notes: Not reported
Federal Facility: NO
NPL Status: NOT ON NPL
CERCLIS Assessment History:
Assessment: DISCOVERY — Completed: 10/01/80
Assessment: PRELIMINARY ASSESSMENT — Completed: 09/22/87
CERCLIS Site Status:
EPA has conducted a preliminary assessment on this site and has determined that no further action is necessary and no hazard was identified
CERCLIS Alias Names: Not Reported

Other Pertinent Environmental Activity Identified at Site:
facility has active water discharge permits

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2 SSE 1/4-1/2 Higher	NYS DOT 500 ROBBINS LANE SYOSSET, NY 11791	LUST	S100177072 N/A

LUST:

Facility ID:	9105514	Spill Date:	19910521
First notified:	CENTRAL OFFICE	Material class:	PETROLEUM
Material spilled:	5	Release QTY:	0.00 GALLONS
Water body affected:	Not reported	Origin:	NON-COMM\INST
Resource affected:	GROUNDWATER	Notifier:	TANK TESTER
Basin of spill:	1700	Project ID:	0
Cleaner:	SPILLER	Date cleaned:	Not reported
Initiated clean up:	Not reported	Close date:	Not reported
Last inspection:	Not reported	Investigator:	T/T/F
PBS #:	0	UST Trust Fund:	T
Status:	Not reported	Penalty:	NO PENALTY
Quantity recovered:	0.00		
Cause:	TANK TEST FAILURE (BULK STORE. PRO.)		
Emergency response:	IT WAS NOT TAKEN		
Facility status:	ACTIVE SPILL (ON GOING)		

---

3 West 1/4-1/2 Higher	LOCKWOOD,KESSLER,BARTLETT 1 AERIAL WAY SYOSSET, NY 11791	LUST	S100147542 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number

LOCKWOOD.KESSLER.BARTLETT (Continued) S100147542

LUST:

Facility ID:	8808962	Spill Date:	19890216
First notified:	REGIONAL OFFICE	Material class:	PETROLEUM
Material spilled:	2	Release QTY:	0.00 GALLONS
Water body affected:	Not reported	Origin:	COMM\INDUST
Resource affected:	ON LAND	Notifier:	OTHER
Basin of spill:	1700	Project ID:	0
Cleaner:	SPILLER	Date cleaned:	19890316
Initiated clean up:	Not reported	Close date:	19890316
Last inspection:	Not reported	Investigator:	MIRZA
PBS #:	0	UST Trust Fund:	F
Status:	MEANS ITS BEEN RESOLVED	Penalty:	NO PENALTY
Quantity recovered:	0.00		
Cause:	TANK OVERFILL		
Emergency response:	IT WAS NOT TAKEN		
Facility status:	COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)		

4
SE
1/4-1/2
Higher

SYOSSET LF
150 MILLER PLACE
OYSTER BAY, NY 11791

CERCLIS
FINDS
NPL

1000386366
NYD000511360

CERCLIS Classification Data:

Site Incident Category:	LANDFILL	Federal Facility:	NO
Ownership Status:	OTHER	NPL Status:	CURRENTLY ON THE FINAL NPL

EPA Notes: TWN OF OYSTER BAY SUSPENDED WASTE DISPL OPERNS AT LF AFTER WTR POLLUTN DETECTD. HI CONCETRNS OF HEAVY METALS IN INDUSTLSLUDGES BEING DEPOSITD & IN DISCHGD WASTES FR SCAVENGER PLT OPERNS. VOC'S IN 2 PRIVT WELLS. CNTY'S PRIMARY GW BECHG AREA

CERCLIS Assessment History:

Assessment:	HAZARD RANKING DETERMINED	Completed:	12/01/82
Assessment:	SCREENING SITE INSPECTION	Completed:	12/01/82
Assessment:	DISCOVERY	Completed:	11/01/79
Assessment:	PRELIMINARY ASSESSMENT	Completed:	11/01/79
Assessment:	FINAL LISTING ON NPL	Completed:	09/08/83
Assessment:	PROPOSAL TO NPL	Completed:	12/30/82

CERCLIS Site Status:
This site is currently under investigation by the government to assess the extent of further action

CERCLIS Alias Name(s):
SYOSSET LANDFILL

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number

SYOSSET LF (Continued) 1000386366

NPL:

ID:	02NY029
Date Listed:	9/08/83 (FINAL)
EPA/ID:	NYD000511360
Haz. Rank Score:	54.27
Status:	LISTED ON NPL
Rank:	122
Group:	3
Ownership:	Municipal
Permit:	None
Site Activities:	Landfill, Municipal
Site Activities:	Landfill, Comm./Indus.
Site Condition:	Contam. Drinking Water
Site Condition:	Direct Contact
Site Condition:	Contam. Ground Water
Waste Type:	Metals
Waste Type:	Solvents
Waste Form:	Not reported

Contaminant:	Media Affected:
1,1,2-TRICHLOROETHYLENE (TCE)	Ground Water
TETRACHLOROETHENE	Ground Water
1,1,1-TRICHLOROETHANE	Ground Water
ARSENIC	Ground Water
CADMIUM (CD)	Ground Water
CHROMIUM AND COMPOUNDS, NOS (CR)	Ground Water
LEAD (PB)	Ground Water

Distance to nearest Population:	Not reported
Population within a 1 Mile Radius:	More than 10,000 People
Vertical Distance to Aquifer:	Not reported
Ground Water Use:	Not Used as Drinking Water, Alternative Source Available
Distance to nearest Surface Water:	Not reported

Other Pertinent Environmental Activity Identified at Site:
civil judicial and administrative enforcement cases against facility

(For more information on this site, call your EDR Customer Service Rep.)

5 NNW 1/4-1/2 Higher	LILCO 200 MICHAEL DRIVE SYOSSET, NY 11791	LUST	S100664637 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number

LILCO (Continued)

S100664637

LUST:

Facility ID:	9203818	Spill Date:	19920701
First notified:	ANSWERING SERVICE	Material class:	PETROLEUM
Material spilled:	8	Release QTY:	1.00 GALLONS
Water body affected:	Not reported	Origin:	COMM\INDUST
Resource affected:	ON LAND	Notifier:	RESPONSIBLE PARTY
Basin of spill:	1700	Project ID:	0
Cleaner:	SPILLER	Date cleaned:	19920702
Initiated clean up:	Not reported	Close date:	19920702
Last inspection:	Not reported	Investigator:	NONE
PBS #:	0	UST Trust Fund:	F
Status:	MEANS ITS BEEN RESOLVED	Penalty:	NO PENALTY
Quantity recovered:	0.00		
Cause:	OTHER		
Emergency response:	IT WAS NOT TAKEN		
Facility status:	COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)		

A6
West
1/4-1/2
Higher

CUSHMAN & WAKEFIELD
200 ROBBINS LANE
JERICHO, NY 11753

LUST

S100147735
N/A

LUST:

Facility ID:	8902489	Spill Date:	19890609
First notified:	REGIONAL OFFICE	Material class:	PETROLEUM
Material spilled:	2	Release QTY:	0.00 GALLONS
Water body affected:	Not reported	Origin:	NON-COMM\INST
Resource affected:	GROUNDWATER	Notifier:	TANK TESTER
Basin of spill:	1700	Project ID:	0
Cleaner:	SPILLER	Date cleaned:	19910529
Initiated clean up:	Not reported	Close date:	19910529
Last inspection:	Not reported	Investigator:	LEUNG
PBS #:	0	UST Trust Fund:	F
Status:	MEANS ITS BEEN RESOLVED	Penalty:	NO PENALTY
Quantity recovered:	0.00		
Cause:	TANK TEST FAILURE (BULK STORE. PRO.)		
Emergency response:	IT WAS NOT TAKEN		
Facility status:	COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)		

Facility ID:	8902490	Spill Date:	19890609
First notified:	REGIONAL OFFICE	Material class:	PETROLEUM
Material spilled:	2	Release QTY:	0.00 GALLONS
Water body affected:	Not reported	Origin:	NON-COMM\INST
Resource affected:	GROUNDWATER	Notifier:	TANK TESTER
Basin of spill:	1700	Project ID:	0
Cleaner:	SPILLER	Date cleaned:	19890802
Initiated clean up:	Not reported	Close date:	19890802
Last inspection:	Not reported	Investigator:	LEUNG
PBS #:	0	UST Trust Fund:	F
Status:	MEANS ITS BEEN RESOLVED	Penalty:	NO PENALTY
Quantity recovered:	0.00		
Cause:	TANK TEST FAILURE (BULK STORE. PRO.)		
Emergency response:	IT WAS NOT TAKEN		
Facility status:	COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)		

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number

CUSHMAN & WAKEFIELD (Continued) S100147735

Facility ID: 8902774
First notified: REGIONAL OFFICE
Material spilled: 2
Water body affected: Not reported
Resource affected: GROUNDWATER
Basin of spill: 1700
Cleaner: SPILLER
Initiated clean up: Not reported
Last inspection: Not reported
PBS #: 0
Status: MEANS ITS BEEN RESOLVED
Quantity recovered: 0.00
Cause: TANK TEST FAILURE (BULK STORE. PRO.)
Emergency response: IT WAS NOT TAKEN
Facility status: COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)

Spill Date: 19890616
Material class: PETROLEUM
Release QTY: 0.00 GALLONS
Origin: COMM\INDUST
Notifier: TANK TESTER
Project ID: 0
Date cleaned: 19890831
Close date: 19890831
Investigator: LEUNG
UST Trust Fund: F
Penalty: NO PENALTY

Map ID	Site	Database(s)	EDR ID Number / EPA ID Number
A7 West 1/4-1/2 Higher	BURGER KING DISTRIBUTION SERVICES 200 ROBBINS LN JERICHO, NY 11753	FINDS LUST RCRIS-LQG	1000233802 NYD986898955

RCRIS:
Owner: BURGER KING DISTRIBUTION SERVICES
(212) 555-1212

Waste	Quantity	Info Source
D001	Not reported	Notification

LUST:
Facility ID: 8909592
First notified: REGIONAL OFFICE
Material spilled: 5
Water body affected: Not reported
Resource affected: ON LAND
Basin of spill: 1700
Cleaner: SPILLER
Initiated clean up: Not reported
Last inspection: Not reported
PBS #: 0
Status: MEANS ITS BEEN RESOLVED
Quantity recovered: 0.00
Cause: OTHER
Emergency response: IT WAS NOT TAKEN
Facility status: COMPLETED SPILL (SPILL IS CLEANED UP AND ALL PAPERWORK IS COMPLETED)

Spill Date: 19891227
Material class: PETROLEUM
Release QTY: 0.00 GALLONS
Origin: COMM\INDUST
Notifier: DEC
Project ID: 0
Date cleaned: 19900625
Close date: 19900625
Investigator: MANCILLA
UST Trust Fund: F
Penalty: NO PENALTY

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Reason
JERICHO	S100782037	SHELL S/S	417 NORTH BROADWAY	11753	LUST	7
JERICHO	S100148377	JERICHO FIRE DISTRICT	NORTH BROADWAY	11753	LUST	7
JERICHO	S100149311	JERICHO F.D	NORTH BROADWAY	11753	LUST	7
JERICHO	S100149172	JERICHO ASSOC.	366 NORTH BROADWAY	11753	LUST	3
JERICHO	S100177503	SHELL SERVICE STATION	417 NORTH BROADWAY	11753	LUST	7
JERICHO	U001853058	WELL #22	NYS RT 106	11791	UST	1
JERICHO	S100149274	JERICH SCHOOL	OLD CEDAR SWAMP ROAD	11753	LUST	2
MUTTONTOWN	U000725176	WELL SITE #29 AND #30	OFF NYS RT 106	11791	UST	1
NASSAU COUNTY	S100443774	HEMPSTEAD (OCEANSIDE) (T)			SWF/LF	7
NASSAU COUNTY	S100443775	NORTH HEMPSTEAD T.S.			SWF/LF	7
NASSAU COUNTY	S100295909	GLEN COVE T.S.			SWF/LF	7
NASSAU COUNTY	S100295906	BETHPAGE LF ENERGY ASSOC			SWF/LF	7
NASSAU COUNTY	S100443773	ENERGY TACTICS OCEANSIDE			SWF/LF	7
NASSAU COUNTY	S100116307	VALLEY STREAM T.S.			SWF/LF	7
NASSAU COUNTY	S100116309	ROCKVILLE CENTER T.S.			SWF/LF	7
NASSAU COUNTY	S100116312	OYSTER BAY T.S.			SWF/LF	7
NASSAU COUNTY	S100546641	GREAT NECK T.S. (V)			SWF/LF	7
SYOSSET	1000694470	SHELL OIL CO	RTE 25A OVER BURKE ST	11791	FINDS, RCRIS-LQG	1
SYOSSET	S100168404	EXXON	250 EILEEN ST	11791	LUST	7
SYOSSET	1000833524	SYOSSET COMPLEX	80 W JERICHO TNPK	11791	RCRIS-SQG	1
SYOSSET	1000555591	SYOSSET MEDICAL BUILDING	175 JERICHO TNPK	11791	RCRIS-SQG, FINDS	1
SYOSSET	1000446597	OYSTER BAY TOWN OF SYOSSET PARK	JERICHO TNPK	11791	RCRIS-SQG, FINDS	1
SYOSSET	U001855196	MEADOWBROOK FORD/SYOSSET	271 JERICHO TNPK.	11791	UST	1
SYOSSET	U001855122	SYOSSET THEATRE	7500 JERICHO TNPK.	11791	UST	1
SYOSSET	U001854917	SYOSSET EXXON	573 JERICHO TKURNPIKE	11791	UST	7
SYOSSET	U001445587	SYOSSET COMMUNITY HOSP.	221 JERICHO TNPK.	11791	UST	1
SYOSSET	S100149465	FAIRHAVEN APTS	JERICHO TURNPIKE / RT 135	11791	LUST	5
SYOSSET	S100171387	UNK	JERICHO TPKE/RTE 135	11791	LUST	5
SYOSSET	S100521014	SYOSSET LANDFILL	MILLER PLACE / ROBBINS LANE	11791	SHWS	6
SYOSSET	S100172745	NYSDOT	NYSDOT HIGHWAY GARAGE	11791	LUST	1
SYOSSET	U001855046	SYOSSET HIGH SCHOOL	SOUTHWOODS ROAD	11791	UST	3
SYOSSET	U001446321	SYOSSET C.S.D. BUS GARAGE	WOODBURY ROAD	11791	UST	3
SYOSSET	1000547877	SYOSSET S H S	SO WOODS RD	11791	FINDS	7
SYOSSET	S100878967	SYOSSET SCHOOL DISTRICT	WOODS ROAD	11791	LUST	7

Reason Codes:

1 = No matching street name
2 = No matching address range
3 = Multiple matching addresses / street intersections
4 = First street name in intersection not found
5 = Second street name in intersection not found
6 = Named streets do not intersect
7 = Other

EPA Waste Codes Addendum

Code	Description
D001	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

GEOCHECK VERSION 1.1
SUMMARY

HYDROGEOLOGICAL INFORMATION

WELL QUADRANT	DISTANCE FROM TP	LITHOLOGY	DEPTH TO WATER TABLE
Northern	1/2 - 1 Mile	Sand	144 ft.
Eastern	>2 Miles	Sand	103 ft.
Southern	1 - 2 Miles	Sand	94 ft.
Western	>2 Miles	Sand	61 ft.

AREA RADON INFORMATION

NASSAU COUNTY, NY

Living Area

Average Activity:	0.640 pCi/L
% <4 pCi/L:	98%
% 4-20 pCi/L:	2%
% >20 pCi/L:	0%

Basement Area

Average Activity:	1.100 pCi/L
% <4 pCi/L:	98%
% 4-20 pCi/L:	2%
% >20 pCi/L:	0%

GEOCHECK VERSION 1.1
HYDROGEOLOGICAL INFORMATION

Well Closest to Target Property (Northern Quadrant)

BASIC WELL DATA

Site ID:	404820073312101	Distance from TP:	1/2 - 1 Mile
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Nassau
Altitude:	228.00 ft.	State:	New York
Well Depth:	185.00 ft.	Topographic Setting:	Undulating
Depth to Water Table:	144.00 ft.	Prim. Use of Site:	Observation
Date Measured:	01011943	Prim. Use of Water:	Unused

LITHOLOGIC DATA

Litholigic Unit:	Mesozoic-Cretaceous-Upper
Lithology of Unit:	Sand
Lithology Modifier:	FINE GRAINED

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 1.1
HYDROGEOLOGICAL INFORMATION

Well Closest to Target Property (Eastern Quadrant)

BASIC WELL DATA

Site ID:	404704073264201	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Nassau
Altitude:	185.00 ft.	State:	New York
Well Depth:	185.00 ft.	Topographic Setting:	Valley flat
Depth to Water Table:	103.00 ft.	Prim. Use of Site:	Observation
Date Measured:	05011940	Prim. Use of Water:	Unused

LITHOLOGIC DATA

Litholigic Unit:	Mesozoic-Cretaceous-Upper
Lithology of Unit:	Sand
Lithology Modifier:	Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 1.1
HYDROGEOLOGICAL INFORMATION

Well Closest to Target Property (Southern Quadrant)

BASIC WELL DATA

Site ID:	404707073305301	Distance from TP:	1 - 2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1958	County:	Nassau
Altitude:	175.00 ft.	State:	New York
Well Depth:	605.00 ft.	Topographic Setting:	Flat surface
Depth to Water Table:	94.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	01011958	Prim. Use of Water:	Public supply

LITHOLOGIC DATA

Litholigic Unit:	Mesozoic-Cretaceous-Upper
Lithology of Unit:	Sand
Lithology Modifier:	COARSE GRAINED

WATER LEVEL VARIABILITY

Not Reported

HYDROGEOLOGICAL INFORMATION

Well Closest to Target Property (Western Quadrant)

BASIC WELL DATA

Site ID:	404628073342001	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1935	County:	Nassau
Altitude:	142.00 ft.	State:	New York
Well Depth:	501.00 ft.	Topographic Setting:	Flat surface
Depth to Water Table:	61.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	05011935	Prim. Use of Water:	Public supply

LITHOLOGIC DATA

Litholigic Unit:	Mesozoic-Cretaceous-Upper
Lithology of Unit:	Sand
Lithology Modifier:	COARSE GRAINED

WATER LEVEL VARIABILITY

Not Reported

Federal EDR-Site Report

SYOSSET LF
150 MILLER PLACE
OYSTER BAY, NY 11791

EDR-ID: 1000386366

Site Report Summary:

Is this site on the Federal CERCLIS list as an abandoned, inactive or uncontrolled hazardous waste site ?.....	Yes
Is this site a Federal SUPERFUND site ?........	Yes
Is this site on the Federal RCRA list as a generator of hazardous wastes ?........	No
Is this site on the Federal RCRA list as a facility that treats, stores or disposes of hazardous wastes ?............	No
Is this site on the Federal TRIS list as having released toxic chemicals to the environment ?........	No
Is this site on the Federal FINDS list ?........	Yes
Is this site on the Federal TSCA list as an importer and/or manufacturer of toxic chemicals ?........	No

... Continued ...

NPL Record:

This site is classified as a federal SUPERFUND site or is proposed for inclusion on the SUPERFUND list. This record was last updated by the government on: 01/10/1994

Site Name:	Syosset Landfill 150 MILLER PLACE Oyster Bay, NY 11791
Status:	Listed on the NPL
Date Listed:	9/08/83
NPL-ID:	02NY029
EPA-ID:	NYD000511360
NPL Rank / Group:	122 / 3
Haz Rank Score:	54.27 [0.00 Least Severe - 100.00 Most Severe]
Site Ownership:	Municipal
Site Permits:	None
Site Activities:	Landfill, Municipal Landfill, Comm./Indus.
Site Condition:	Contam. Drinking Water Direct Contact Contam. Ground Water
Waste Type:	Metals Solvents
Waste Form:	NOT REPORTED

Contaminant	Media Affected
1,1,2-TRICHLOROETHYLENE [TCE]	Ground Water
TETRACHLOROETHENE	Ground Water
1,1,1-TRICHLOROETHANE	Ground Water
ARSENIC	Ground Water
CADMIUM [CD]	Ground Water
CHROMIUM AND COMPOUNDS, NOS [CR]	Ground Water
LEAD [PB]	Ground Water

Population Proximity Data

Distance to nearest Population: NOT REPORTED
Population within a 1 Mile Radius: More than 10,000 People

Ground Water Data

Vertical Distance to Aquifer: NOT REPORTED
Ground Water Use: Not Used as Drinking Water, Alternative Source Available
Distance to nearest Surface Water: NOT REPORTED

... Continued ...

CERCLIS Record:

This site is listed in the Federal CERCLIS database as having an abandoned, inactive or uncontrolled hazardous waste site. This record was last updated by the government on: 03/29/94

CERCLIS Name: SYOSSET LF
150 MILLER PLACE
OYSTER BAY, NY 11791
NASSAU County

EPA-ID: NYD000511360

Classification: Landfill

Ownership Status: Other than Federal, State, District, County, Municipality, Indian Lands, Mixed Ownership or Private

NPL Status: Currently on the Superfund (NPL) List

Site Status: This site is currently under investigation by the government to assess the extent of further action.

EPA Notes: TWN OF OYSTER BAY SUSPENDED WASTE DISPL OPERNS AT LF AFTER WTR POLLUTN DETECTD. HI CONCETRNS OF HEAVY METALS IN INDUSTLSLUDGES BEING DEPOSITD & IN DISCHGD WASTES FR SCAVENGER PLT OPERNS. VOC'S IN 2 PRIVT WELLS. CNTY'S PRIMARY GW BECHG AREA

Site Assessment History:	Start	Completion
DISCOVERY Primary Responsibility: EPA- fund financed	NOT REPORTED	11-01-79A
PRELIMINARY ASSESSMENT Primary Responsibility: EPA- fund financed	NOT REPORTED	11-01-79A
SCREENING SITE INSPECTION Primary Responsibility: EPA- fund financed	11-01-79A	12-01-82A
HAZARD RANKING DETERMINED Primary Responsibility: EPA- fund financed	NOT REPORTED	12-01-82A
FINAL LISTING ON NPL Primary Responsibility: EPA- fund financed	NOT REPORTED	09-08-83A
PROPOSAL TO NPL Primary Responsibility: EPA- fund financed	NOT REPORTED	12-30-82A

[A - Actual, P - Planned]

This site is also known under one or more aliases as follows:

SYOSSET LANDFILL
TOWN OF OYSTER BAY MILLER PL
SYOSSET, NY 11791

... Continued ...

FINDS Record:

This site is listed in the Federal FINDS database. Please note that the FINDS database may contain government records which are included in your particular report and may reference an out-of-date record formally associated with the site. The government last updated this specific record on: 10/05/90

FINDS Name:	SYOSSET LF 150 MILLER PLACE SYOSSET, NY 11791
EPA-ID:	NYD000511360
Latitude:	404802
Longitude:	0733047
Owner Type:	NOT REPORTED
Operator Type:	NOT REPORTED
Sic Code:	NOT REPORTED

EPA Records Indicate Facility Is Listed In:

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY INFORMATION SYSTEM [CERCLIS]

Facility ID:	NYD000511360
GOVERNING LEGISLATION:	COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT [SUPERFUND].
THIS LEGISLATION COVERS:	POTENTIALLY UNCONTROLLED HAZARDOUS WASTE SITES, SUPERFUND SITES.

IMPLEMENTING THE LEGISLATION IS THE RESPONSIBILITY OF EPA'S:
OFFICE OF EMERGENCY AND

ENFORCEMENT DOCKET SYSTEM [DOCKET]

Facility ID:	02-90-0182
GOVERNING LEGISLATION:	ALL ENVIRONMENTAL STATUTES.
THIS LEGISLATION COVERS:	FACILITIES WITH CIVIL JUDICIAL AND ADMINISTRATIVE ENFORCEMENT CASES.

IMPLEMENTING THE LEGISLATION IS THE RESPONSIBILITY OF EPA'S:
OFFICE OF ENFORCEMENT AND

CHAIN OF TITLE

Section: 15
Block: G
Lot: 16

Grantor	Grantee	Date
County of Nassau	Board of Coop. Education Services of Nassau County	1/31/89
Central School District #2	County of Nassau	12/30/63
Town of Oyster Bay & U.S. of A (Dept. of Navy)	Central School District #2	6/15/62
U.S. of A (Dept. of Navy) Reconstruction Finance Corp.	U.S. of A (Dept. of Navy)	5/1/48

Section: 15
Block: G
Lot: 32

Grantor	Grantee	Date
Renwil Machine Corp.	136 Oak Drive Assoc.'s.	5/4/84
W.H. Instrument, Inc.	Renwil Machine Corp.	4/12/84
Harry A. Trautmann Jr.	W.H. Instrument, Inc.	11/14/74
William Luxenberg	Harry A. Trautmann Jr.	7/9/69
Harry A. Trautmann Jr.	William Luxenberg	4/15/60
Robina S. Watson	Harry A. Trautmann Jr.	9/16/55
Albert A Lewis Exec.	Robina S. Watson	9/2/49

Section: 15
Block: G
Lot: 33

Grantor	Grantee	Date
Catherine C. Trautmann	The Pay-O-Matic Corp.	2/28/84
Octah Realty, Inc.	Catherine C. Trautmann	3/17/64
Robina S. Watson	Octah Realty, Inc.	9/16/55
Albert A. Lewis Exec.	Robina S. Watson	9/2/49

Section: 15
Block: G
Lot: 34

Grantor	Grantee	Date
Nassau County Industrial Development Agency	Joseph Silveri	1/17/89
Joseph Silveri	Nassau County Industrial Development Agency	10/4/85
Beltran Associates. Inc.	Joseph Silveri	5/13/85
Ray Contracting Co., Inc.	Beltran Associates, Inc.	1/5/79
44 Maple Realty Corp.	Dorant. Inc.	6/2/75
William Luxenberg	44 Maple Realty Corp.	7/9/69
Harry A. Trautmann Jr.	William Luxenberg	7/9/69
Robina S. Watson	Harry A. Trautmann Jr.	9/16/55
Albert A. Lewis Exec.	Robina S. Watson	9/2/49

Section: 15
Block: G
Lot: 109

Grantor	Grantee	Date
Beltran Associates	Joseph Silveri	5/13/85
Joseph Silveri	Nassau County Industrial Development Agency	10/4/84
Revnil Machine Corp.	136 Oak Dr. Assoc.'s	5/4/84
W.H. Instrument Inc.	Revnil Machine Corp.	4/12/84
Ray Contracting Co., Inc.	Bellrani Associates. Inc.	1/5/79
Free Realty Holding Corp.	Alarm Device Mfg. Co.	9/21/78
44 Maple Realty Corp.	Dorant. Inc.	6/2/75
Harry A. Trautmann Jr.	W.H. Instrument Inc.	11/14/74
William Luxenberg	44 Maple Realty Corp.	7/9/69
Harry A. Trautmann Jr.	William Luxenberg	7/9/69
William Luxenberg	Harry Luxenberg	7/9/69

Lot 109 continued:

Octah Realty Inc.	Catherine c. Trautmann	3/17/64
Axinn & Mascioli, Inc.	Free Realty Holding Corp.	8/23/63
Donald E. Axinn & Frank X. Mascioli	Axinn & Mascioli, Inc.	1/30/63
Pal-Pel Corp.	Donald E. Axinn & Frank X. Mascioli	1/23/63
Ced-Gro Realty Corp.	Pal-Pel Corp.	1/18/60
Herman E. Lauman	Ced-Gro Realty Corp.	7/23/57
Robina S. Watson	Harry A. Trautmann Jr.	9/16/55
Robina S. Watson	Octah Realty, Inc.	9/16/55
Est. Harold C. Lewis Exec.	H.E. Lauman	11/18/52
Albert A. Lewis Exec.	Robin S. Watson	9/2/49

Section: 15
Block: G
Lot: 211

Grantor	Grantee	Date
Free Realty Holding Corp.	Alarm Device Mfg. Co.	9/21/78
Axinn & Mascioli, Inc.	Free Realty Holding Corp.	8/23/63
Donald E. Axinn & Frank X. Mascioli	Axinn & Mascioli, Inc.	1/30/63
Pal-Pel Corp.	Donald E. Axinn & Frank X. Mascioli	1/23/63
Ced-Gro Realty Corp.	Pal-Pel Corp.	1/18/60
Herman E. Lauman	Ced-Gro Realty Corp.	7/23/57
Est. Harold C. Lewis Exec's	H.E. Lauman	11/18/52

Section: 15
Block: 41
Lot: 19

Grantor	Grantee	Date
Neil Posillico	Frank & Tony Toscano	8/12/94
4 Bros. Mason Supply, Inc.	Neil Posillico etal	2/14/84

Lot 19 continued:

Erasmus J. Tafaro	4 Bros. Mason Supply, Inc.	1/23/70
Carl Johnson	Erasmus J. Tafaro	11/14/63
William Drost & Magnus Burfeindt	Carl Johnson	5/5/59
John C. & Hanni Schulz	William Drost & Magnus Burfeindt	3/9/56
Arthur M. Ragazzino	John C. & Hanni Schulz	3/22/55
Harold & Anna Wahne	Arthur M. Ragazzino	8/6/50
Lewis Development Co., Inc.	Harold & Anna Wahne	11/26/48

Section: 15
Block: 41
Lot: 20

Grantor	Grantee	Date
Terence Cullen	Aaron Sokol	1/23/95
Lambda Holdings Inc.	Aaron Sokol & Terence Cullen	10/22/93
Veeco Instruments Inc., FCA Veeco Inst. Acquisition Corp.	Lambda Electronics Inc.	3/15/91
UPA Technology Inc.	Veeco Inst. Acquisition Corp.	1/18/90
Nassau County Industrial Development Agency	UPA Technology, Inc.	12/19/86
UPA Technology Inc.	Nassau County Industrial Development Agency	6/24/82
Sidney & Phyllis Lierber	UPA Technology Inc.	6/29/81
Rego Crescent Corp.	UPA Technology Inc.	8/28/78
Joseph Harris	Nassau County	6/29/50
County of Nassau	Joseph Harris	10/14/49
County of Nassau x Tres	County of Nassau	4/21/49
Reconstruction Finance Corp.	U.S. of A. (Dept. of Navy)	5/1/48

Section: 15
Block: 157
Lot: 19

Grantor	Grantee	Date
Aerial Way Corp.	Lockbart Realty Corp.	2/1/62
Ellis Chingos	Aerial Way Corp.	11/20/56
Murray Manufacturing Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Manufacturing Corp.	4/17/51

Section: 15
Block: 157
Lot: 21

Grantor	Grantee	Date
3 Aerial Way Corp.	Gerald I. Starr	7/5/72
Morris Back	3 Aerial Way Corp.	6/30/72
Nathan T. Sedley	Morris Back	1/2/66
Nathan T. Sedley	Morris Back as Trustee: Thomas-Leeds Inc. Profit Sharing Plan	7/21/64
Morris Back	Nathan T. Sedley	7/24/61
Ellis Chingos	Nathan T. Sedley & Morris Back	3/30/61
Murray Manufacturing Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Manufacturing Corp.	4/17/51

Section: 15
Block: 157
Lot: 23

Grantor	Grantee	Date
Rone Realty Corp.	Aerial Way Associates	1/31/78
Bank of NY as Trustee	Rone Realty Corp.	1/31/78
Fairchild Camera & Instrument Corp.	14th & 34rd Corp.	5/13/70
Aerial Way Associates	Fairchild Camera & Instrument Corp.	1/31/67
Ellis Chingos	Aerial Way Associates	8/12/58

Lot 23 continued:

Murray Manufacturing Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Manufacturing Corp.	4/17/51

Section: 15
Block: 157
Lot: 27

Grantor	Grantee	Date
Michael Forte	Pittway Corp.	11/18/68
Michael Forte	County of Nassau	5/21/68
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 32

Grantor	Grantee	Date
N.S. Realty Co.	17 Aerial Way Assoc.'s	8/3/79
Chingos Associates	N.S. Realty Co.	4/6/78
John Chingos Construction Corp.	Chingos Associates	4/18/74
Chingos Associates	John Chingos Construction Corp.	4/5/74
Morris Back	Chingos Associates	2/26/73
Nathan T. Sedley	Morris Back	1/2/66
Nathan T. Sedley	Morris Back as Trustee Thomas-Leeds Co., Inc. Profit Sharing Plan	7/21/64
Nathan T. Sedley	Morris Back	2/7/64
Ellis Chingos	Nathan T. Sedley & Morris Bank	3/30/61
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 157
Lot: 41

Grantor	Grantee	Date
Michael Forte	Pittway Corp.	11/18/68
Foreal Homes Inc.	Michael Forte	9/20/61
Michael Forte	Foreal Homes Inc.	9/20/61
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 42

Grantor	Grantee	Date
Lee Blatt & Herman Kagan	Lee Blatt	2/13/86
Bogart Development Co.	Lee Blatt & Herman Kagan	1/10/86
Jessie Rothman	175 Eileen Development Co.	2/31/70
175 Eileen Development Corp.	175 Eileen Development Co.	3/17/69
Michael Forte	175 Eileen Development Co.	3/17/69
Michael Forte	County of Nassau	5/21/68
Foreal Homes. Inc.	Michael Forte	12/28/66
Michael Forte	Foreal Homes. Inc.	12/28/66
Foreal Homes. Inc.	Michael Forte	3/28/61
Michael Forte	Foreal Homes. Inc.	3/28/61
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 44

Grantor	Grantee	Date
Metallurgical Processing Corp.	Pittway Corp.	2/5/79
Port Realty Co.	Metallurgical Processing Corp.	4/9/69
180 Michael Drive Corp.	Port Realty Co.	6/10/68
Port Realty Co.	180 Michael Drive Corp.	6/10/68
Michael Forte	Port Realty Co.	2/7/66
Arthur M. Rogozzino	Horm. Holding Co., Inc.	6/22/60
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 45

Grantor	Grantee	Date
Taxco Holding Corp.	Alarm Device Mfg., Co.	4/9/80
Foreal Homes. Inc.	Taxco Holding Corp.	4/6/79
Formia Const. Co., Inc.	Foreal Homes. Inc.	4/5/79
Gail Gillman	Formia Const. Co., Inc.	9/1/70
Michael Forte	Foreal Homes. Inc.	8/1/67
Arthur M. Rogozzino	Hormi Holding Co., Inc.	8/1/67
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Siverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 46

Grantor	Grantee	Date
Paul & Charlse Serwitz & Edith Rubinstein	Ruser Realty Co.	12/12/91
Dupont Associates Inc.	Paul Serwitz	8/1/83
Newport Assoc. Inc.	Dupont Associates, Inc.	1/6/75
Sol & Irving Goldman	Newport Associates Inc.	10/26/72
Chase Manhattan Bank as Trustee	Sol & Irving Goldman	6/16/72
Ruser Realty Corp.	Chase Manhattan Bank as Trustee	2/1/63
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin	4/1/55

Section: 15
Block: 157
Lot: 49

Grantor	Grantee	Date
Kirby Builders Inc.	Setre Corp.	11/2/87
Taxco Holding Corp.	Kirby Builders Inc.	12/15/83
Michael Forte	Taxco Holding Corp.	4/6/79
Michael Forte	Foreal Homes, Inc.	1/10/69
Foreal Homes, Inc.	Michael Forte	1/10/69
Arthur M. Rogozzino	Hormi Holding Co., Inc.	6/22/60
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 51

Grantor	Grantee	Date
Metallurgical Processing Corp.	Pittway Corp.	2/5/79
Port Realty Co.	Metallurgical Processing Corp.	4/9/69
Foreal Homes, Inc.	Michael Forte	1/10/69
Michael Forte	Foreal Homes, Inc.	1/10/69
180 Michael Dr. Corp.	Port Realty Co.	6/10/68
Suburbia Federal & Savings and Loan Associate	180 Michael Dr. Corp.	6/7/68
Arthur M. Rogozzino	Hormi Holding Co. Inc.	6/22/60
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 52

Grantor	Grantee	Date
Metallurgical Processing Corp.	Pittway Corp.	2/5/79
Port Realty Co.	Metallurgical Processing Corp.	4/9/69
180 Michael Dr. Corp.	Port Realty Co.	6/10/68
Suburbia Federal & Savings and Loan Associate	180 Michael Dr. Corp.	6/7/68
Arthur M. Rogozzino	Hormi Holding Co. Inc.	6/22/60
Michael Forte	Ruser Realty Corp.	5/9/60
Herman M. Seldin & Paul R. Silverstein	Michael Forte	10/24/55
Bank of NY etc.	Herman M. Seldin & Paul R. Silverstein	4/1/55

Section: 15
Block: 157
Lot: 60

Grantor	Grantee	Date
Loral Corp.	Loral Fairchild Corp.	6/25/90
Fairchild Weston System Inc.	Loral Corp.	6/12/90
Ellis Chingos	Fairchild Camera & Inst. Corp.	11/18/76
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 157
Lot: 61

Grantor	Grantee	Date
Loral Corp.	Loral Fairchild Corp.	6/25/90
Fairchild Weston Systems Inc.	Loral Corp.	6/12/90
Fairchild Semiconductor Corp.	Fairchild Weston Systems Inc.	9/25/87
Charles J. Mascioli	Fairchild Camera & Instrument Corp.	11/18/76
Joseph Mascioli	Charles J. Mascioli	5/29/75
Charles J. Mascioli	Joseph Mascioli	11/28/72
Wilmar Construction Corp.	Charles Mascioli	8/28/67
Charles Mascioli	Wilmar Construction Corp.	8/25/67

Section: 15
Block: 161
Lot: 7

Grantor	Grantee	Date
Dennis J. Driscoll	Tuck-Leou Associates	8/2/84
Est. Michael B. Driscoll	Dennis Driscoll	6/11/84
Great Eastern Printing Co.	Florence & Dennis Driscoll as Trustee	6/8/84
Ellis Chingos	Great Eastern Printing Co., Inc.	1/5/71

Lot 7 continued:

Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 161
Lot: 8

Grantor	Grantee	Date
Rone Realty Corp.	Aerial Way Associates	1/31/78
Bank of NY as Trustee	Rone Realty Corp.	1/31/78
Fairchild Camera & Inst. Corp.	14th & 3rd. Corp.	5/13/70
Aerial Way Associates	Fairchild Camera & Inst. Corp.	1/31/67
Ellis Chingos	Aerial Way Assoc.'s	8/12/58
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 161
Lot: 9

Grantor	Grantee	Date
Daniel H. Frank	6 Aerial Way Realty Corp.	10/20/89
Abandaco Inc.	Daniel H. Frank	12/29/87
Hidden Harbor Land Ltd.	Abandaco, Inc.	7/15/87
Seymour Lowell & Robert Belskey	Hidden Harbor Lands Ltd.	12/13/86
Chingos Associates	Seymour Lowell & Robert Belskey	11/17/78
John Chingos Construction Corp.	Chingos Associates	9/27/68
Ellis & John Chingos	John Chingos Construction Corp.	8/16/68
Ellis Chingos	Chingos Associates	6/28/68
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 161
Lot: 40

Grantor	Grantee	Date
Daniel H. Frank	6 Aerial Way Realty Corp.	10/20/89
Abandac. Inc.	Daniel H. Frank	12/29/87
Hidden Harbor Land Ltd.	Abandac. Inc.	7/15/77
Seymour Lowell & Robert Belsky	Hidden Harbor Land Ltd.	12/3/86
Chingos Associates	Seymour Lowell & Robert Belskey	11/17/78
John Chingos Construction Corp.	Chingos Associates	9/27/68
Ellis & John Chingos	John Chingos Construction Corp.	8/16/68
Ellis Chingos	Chingos Associates	6/28/68
Ellis Chingos	County of Nassau	2/6/55
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murrary Mfg. Corp.	4/17/51

Section: 15
Block: 161
Lot: 41

Grantor	Grantee	Date
Ellis Chingos	County of Nassau	2/6/55
Murray Mfg. Corp.	Ellis Chingos	3/31/54
Hicksville Airpark Inc.	Murray Mfg. Corp.	4/17/51

Section: 15
Block: 204
Lot: 14

Grantor	Grantee	Date
Terminal Industrial Park. Inc.	County of Nassau	3/7/78
Joseph Gluckman etal.	Terminal Industrial Park. Inc.	5/15/61
Nicholas A. Piccione	Gay Lore Development Comp., Inc.	1/3/61

Section: 15
Block: 204
Lot: 17

Grantor	Grantee	Date
Terminal Industrial Park, Inc.	Gordon Nassau Realty Corp.	3/7/86
Joseph Gluckman etal.	Terminal Industrial Park, Inc.	5/15/61
Nicholas A. Piccione	Gay Lore Development Comp., Inc.	1/3/61
Joseph Gluckman & Nicholas A. Piccione	Terminal Industrial Park, Inc.	5/16/60

Section: 15
Block: 204
Lot: 19

Grantor	Grantee	Date
Terminal Industrial Park, Inc.	Gordon Floral Realty Corp.	12/18/90
Joseph Gluckman etal	Terminal Industrial Park, Inc.	5/15/61
Nicholas A. Piccioine	Gay Lore Development Company, Inc.	1/3/61

Section: 15
Block: 204
Lot: 20

Grantor	Grantee	Date
Joseph Gluckman etal.	Terminal Industrial Park, Inc.	5/15/61
Nicholas A. Piccione	Gay Lore Development Company, Inc.	1/3/61
Joseph Gluckman & Nicholas A. Piccione	Terminal Industrial Park, Inc.	5/16/60

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Table 1. Current Property Tenants.

1. Cerro Wire, former wire manufacturer.

2. Unsigned building, currently vacant.

3. Great Eastern Printing, 7 Aerial Way, printing company.

4. Universal Electric State Lighting, 5 Aerial Way, operations unknown;
U.S. Geological Survey, 5 Aerial Way

5. Centroid Inc., 3 Aerial Way, unknown operations.

6. LKB, Inc., 1 Aerial Way, engineering consultants.

7. Caligor Hospital Supply Company, 300 Michael Dr., sales and possible assembly of hospital supplies.

   New Breed Corp. Integrated Logistical Services, 300 Michael Dr.

8. Same as above.

9. Same as above.

10. Tristate Consumer Insurance Corp., 175 Eileen Way, insurance sales.

11. National Learning Corp., 212 Michael Dr., publishing operation.

12. Nissan Auto Parts, 200 Michael Drive, auto parts storage and sales operations.

13. Ademco, Inc., 176-178 Michael Drive, manufacture and sales of alarm systems.

14. First Alert, Inc., 172 Michael Drive, smoke alarm sales operation.

15. Same as above.

16. Office building, 160 Oak Dr.

17. Office Building, undetermined address on Oak Dr.

18. Johnson Construction, undetermined address on Oak Drive.

19. Empty structure, undetermined address on Oak Dr.

Table 1. Current Property Tenants.

20. Ademco, Inc., undetermined address on Oak Drive, manufacture and sales of alarm systems.

21. Roadway, Inc., 140 Gordon Dr., storage and possible maintenance of tractor trailers.

22. Office building, 80 Gordon Dr.

23. Office building, undetermined address on Gordon Dr.

24. Residential houses.

25. Residential houses.

26. Town of Oyster Bay Highway Maintenance Department.

    Town of Oyster Bay Animal Shelter.

27. Residential houses.

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VALTECH RESEARCH, INC.
820 Hempstead Turnpike • Franklin Square, New York 11010
(516) 358-9400 Fax (516) 358-5050

CERTIFICATE OF OCCUPANCY REPORT

TITLE NUMBER: GMES-NY0029008 DATE: 02/28/94

PREMISES: 300 MICHAEL DRIVE, SYOSSET TAX CLASS: 710.14

MUNICIPALITY: TOWN OF OYSTER BAY COUNTY: NASSAU

SECT: 15 BLK: 157 LOT(s): 46

THE FOLLOWING INFORMATION IS ON FILE WITH THE DEPARTMENT OF BUILDINGS:

- CO# 13654 01/17/61 PERMIT# A15025 05/09/60
  242' X 457' INDUSTRIAL BUILDING

- CO# 30546 06/24/69 PERMIT# C9614 06/28/58
  371' X 150' ADDITION

- CO# 50053 03/06/80 PERMIT# C1055 01/20/66
  RECONSTRUCTED & ENCLOSED EXISTING LOADING PLATFORM

- CO# A23111 01/04/91 PERMIT# L16330, L15005
  REBUILT BOILER ROOM & DAMAGED WALL

- CO# A27554 10/02/92 PERMIT# L22236 03/29/91
  INTERIOR ALTERATIONS

- OPEN PERMIT# L10323 03/31/89 (EXPIRED)
  INTERIOR ALTERATIONS

Certificate of Occupancy

Town of Oyster Bay Department of Planning and Development
Division of Building, 74 Audrey Avenue, Oyster Bay, New York 11771

No. A2755

10/02/92

Property Owner Information:
Lin Pac Inc. 655A Selig Drive SW Atlanta Georgia 30336 404-691-1048

Property Information:	Section:	Block:		Lot(s):	Zone:	SD
	15	157		46	H	14
Located on:	**Side of**	**Feet**		**of**	**Post Office**	
South	Michael Drive	331	South	Eileen Way	Syosset	

Address: 300 Michael Drive Syosset

Appl No.	Bldg Per. No.	Date	Receipt No.	Z.B.A. No.	Date	Town Brd No.	Date	CA No	Elec No
0853	L22236	03/29/91	H52169					G9297	N143998

Work Completed

L22236 - Interior Alterations

This certifies that the above construction conforms with the approved plans and Codes of the Town of Oyster Bay and the New York State Fire Prevention and Building Code.

TOBDPD Certificate of Occupancy - SBL Copy

Salvatore B. Pinto

Initials

Commissioner, Department of Planning and Development

4 H.V.A.C. Drawings
5 Additional Permits (see comments)
6 Expired Building Permits
7 Building Permit Renewals
8 Electrical Certificate of Approval OK N14598
9 Plumbing Permit Application
10 Plumbing Inspection
11 Plumbing Certificate of Approval OK D9297
12 Sewer Certificate of Approval
13 Cesspool Approval
14 Final Inspection
15 Final Surveys copies
16 Road Waiver Affidavits
Homeowner ☐ Builder ☐
17 Park Fees
18 Final Supervision Affidavit
19 Truss Certification
20 Disclosure Affidavits
21 Board of Health Approval
22 X-Ray Approval
23 Fire Marshal's Approval
24 Fire Sprinkler Test Approval OK
25 Flame Spread Certifications
Floor ☐ Walls ☐ Ceiling ☐ Carpet ☐
26 Public Assembly License Approval
27 Multiple Residence Certificate Approval
28 T.O.B. Public Lighting Approval
29 T.O.B. Eng. and Drainage Approval
30 T.O.B. Park Dept. Approval
31 T.O.B. Environmental
32 T.O.B. Highway Approval

36 Town Attorney Approval
37 N.C. Home Improvement License
38 Workers Compensation Certificate
39 N.Y.S. Energy Conservation Code
40 Certified Checks
41 Site Plan Approval
42 Elevator Certification of Compliance
43 Concrete Certification needs
44 Steel Certification
45 Performance Bond need
46 N.Y.S. Dept. of Agriculture Approvals
47 Filing Fee $ Final Fee $
48 Fee Due $
49 Town Board Resolution Compliance
50 Z.B.A. Compliance
51 Other

Comments:

☐ I hereby approve the issuance of a Certificate of Occupancy

Lynne R. Benz CTI 10/2/92

Signature Title

DP/CT/JP/fa

CERTIFICATE OF OCCUPANCY

No. A 23111

TOWN OF OYSTER BAY
DEPARTMENT OF PLANNING & DEVELOPMENT
DIVISION OF BUILDING
TOWN HALL, AUDREY AVENUE
OYSTER BAY, N.Y. 11771

ISSUED TO OWNER
NAME Clark Surgical Corp.
STREET ADDRESS 300 Michael Drive, P.O. #737-
POST OFFICE Syosset, NY 11791
FOR BUILDING LOCATED ON THE TAX MAP OF THE TOWN OF OYSTER BAY IN

SECTION	BLOCK	LOTS
15	157	46

DATE 1/4/91
BUILDING PERMIT No. L16330, L15005
APPLICATION No. 3707
RECEIPT No. H38802, H35041
PERMIT DATE 1/5/90, 4/4/90
APPEAL BOARD No.
Zone H

This CERTIFIES that the Building located at South side of Michael Drive, 331' South of Eileen Way, Syosset, NY was constructed substantially in accordance with the plans filed for the above Building Permit and to all requirements of The Building Zone Ordinance and The Building Code of the Town of Oyster Bay and the occupancy is limited to the following use: Class L16330 - Rebuild boiler room, 41.67'x29.83'.

L15005 - Rebuild damaged wall.

SHOULD THE OCCUPANCY CHANGE FROM THE ABOVE LIMITATION OF USE, APPLICATION MUST BE MADE FOR NEW CERTIFICATE.

PLUMBING APPROVAL No. ____
UNDERWRITERS CERTIFICATE
N.B.F.U. No. H159253

Richard S. Black
DEPARTMENT OF PLANNING & DEVELOPMENT
DIVISION OF BUILDING

____ Plumbing C.A. ____

____ Sewer C.A. ____

____ Final Survey ____

____ Lumber Affidavit ____

____ Highway Division Approval ____

____ Public Lighting Approval ____

____ Engineering & Drainage Approval ____

____ Certified Check Submitted ____

____ Health Department Approval ____

____ Park Fees Paid ____

____ Final Supervision Affidavit ____

____ Board of Appeals Compliance ____

____ Assembly License Approval ____

TOWN OF OYSTER BAY

DEPARTMENT OF PLANNING & DEVELOPMENT
DIVISION OF BUILDING
AUDREY AVENUE, OYSTER BAY, NEW YORK 11771

BUILDING PERMIT

BUILDING INSPECTOR'S COPY
POST THIS PERMIT CONSPICUOUSLY

SECTION	BLOCK	LOT	ZONE	APPLICATION NO.	B/A CASE NO.	RECEIPT NO.	DATE ISSUED	PERMIT NO.
15	157	46	H	000205		H24347	3/31/89	L10323

JB/JP

PERMITTEE: Lin-Pac Inc.
STREET ADDRESS: 653A Selig Drive SW
POST OFFICE: Atlanta, GA 30336
TELEPHONE NO. (404)691-1048

CONTRACTOR: Harbor Custom Building Inc. 48 Coolidge Ave. Amityville,
PLUMBER: Michael Gatoff of Beilkey Maint. Corp. 1800 Acess Rd
HEATING: Oceanside, New York 11572

PERMISSION GRANTED FOR CONSTRUCTION OF:
FAMILY DWELLING ☐ COMMERCIAL ☒ FACTORY ☐

Permission granted for interior alterations [illegible] plans dated 11/18/88 per [illegible]. Install 14 plumbing fixtures per code. [illegible]
Zoning Review: Interior Alterations only

EXTENSION OF TIME
EXPIRES 9/30/90
RECEIPT # H21529
MUST COMPLY WITH PRESENT CODES"

LOCATED ON	SIDE OF	FEET	OF	POST OFFICE	EST. VAL. CONSTRUCTION
South	[illegible] Drive	331' south	Eileen Way	Syosset, N.Y.	44,493.00

FEES	
CONSTRUCTION	270.00
PLUMBING	95.00
BURNER	
TANK	
SANITARY	
PLUMB. C.A.	
CONST. C.O.	
TOTAL FEE	

YOUR LICENSE IS NOT TRANSFERABLE AND IS SUBJECT TO REVOCATION UPON VIOLATION.
ALL ELECTRICAL AND PLUMBING CONTRACTORS MUST BE LICENSED IN THE TOWN OF OYSTER BAY
FOUNDATION SURVEY MUST BE APPROVED BEFORE WALLS, STEEL OR FRAMING STARTS, SEE 4*

TOTAL FEE 52[illegible].00

( ) Dock
( ) Enclosed porch
( ) Extention
( ) Fence
( ) Fireplace
( ) Foundation
( ) Garage
( ) Garage/Converted
( ) Interior alterations
( ) Retaining wall/Bulkhead
( ) Swimming Pool/Fence
( ) Swimming Pool/Heater
( ) Swimming Pool/Filter
( ) Swimming Pool/Accessories
( ) Other Structures:

Additional Comments:

* Extended Til 9-30-90

** Also L13685, L14253, K4440

No Prior inspection reports are indicated, or on File. Plans call for 3 Hr Rated Door, but only 1½ Hour Provided. Block wall Complete upon Arrival. Need Certification that wall [illegible] reinforcement. [illegible] Pointing of Concrete block wall required. OK To [illegible] [illegible] New Construction

JGS:LWH:sa

CERTIFICATE OF OCCUPANCY

No. 50053

TOWN OF OYSTER BAY
DEPARTMENT OF PLANNING & DEVELOPMENT
DIVISION OF BUILDING
TOWN HALL, AUDREY AVENUE
OYSTER BAY, N.Y. 11771

ISSUED TO OWNER
NAME
STREET ADDRESS Columbia Corrugated Container Corp. 300 Michael Drive
POST OFFICE Syosset, New York
FOR BUILDING LOCATED ON THE TAX
MAP OF THE TOWN OF OYSTER BAY IN
SECTION 15 BLOCK 157 LOTS 46

DATE 3/6/80
BUILDING PERMIT No. C 1055
APPLICATION No. 376
RECEIPT No. 100,000
PERMIT DATE 1/20/66
APPEAL BOARD No.
Zone H

This CERTIFIES that the Building located at south end of Michael Drive, 331' south of Eileen Way, Syosset, New York, was constructed substantially in accordance with the plans filed for the above Building Permit and to all requirements of The Building Zone Ordinance and The Building Code of the Town of Oyster Bay and the occupancy is limited to the following use: Class

Reconstructed and enclosed existing loading platform

SHOULD THE OCCUPANCY CHANGE FROM THE ABOVE LIMITATION OF USE, APPLICATION MUST BE MADE FOR NEW CERTIFICATE.

PLUMBING APPROVAL No. None
UNDERWRITERS CERTIFICATE
N.B.F.U. No. ~~XXXX~~ N. 826474

DEPARTMENT OF PLANNING & DEVELOPMENT
DIVISION OF BUILDING

Thomas D. Sutton,
87 Henry St.,
Roosevelt, L.I. 11575

Carlton E. Dhaad
STATE SUPERINTENDENT

Per 3

This certificate must not be altered in any manner; return to the office of the Board if incorrect. Inspectors may be identified by their credentials.

494

922
6781

COPY

CERTIFICATE OF OCCUPANCY

No. 30546

TOWN OF OYSTER BAY
DEPARTMENT OF ENGINEERING AND BUILDING
TOWN HALL, AUDREY AVENUE
OYSTER BAY, N. Y.

ISSUED TO OWNER Columbia Corrugated Container Corp.
NAME 300 Midwood Drive
STREET ADDRESS Syosset, New York
POST OFFICE
FOR BUILDING LOCATED ON THE TAX
MAP OF THE TOWN OF OYSTER BAY IN
SECTION [illegible] BLOCK 157 LOTS [illegible]

DATE June 24, 1969
BUILDING PERMIT No. C9514
CESSPOOL PERMIT No.
PLUMBING PERMIT No.
OIL BURNER PERMIT No.
APPEAL BOARD No.
SCHOOL DIST. [illegible]

THIS *CERTIFIES that the Building located at* [illegible] Midwood Drive [illegible]
Syosset, New York [illegible]
was constructed substantially in accordance with the plans filed for the above Building Permit and to all requirements of The Building Zone Ordinance and The Building Code of the Town of Oyster Bay and the occupancy is limited to the following use: Class [illegible] Addition to existing
Industrial Building - type [illegible] Classification
[illegible] Zone Use Only

SHOULD THE OCCUPANCY CHANGE FROM THE ABOVE LIMITATION OF USE APPLICATION MUST BE MADE FOR NEW CERTIFICATE.

TOWN OF OYSTER BAY DEPARTMENT OF ENGINEERING & BUILDING

UNDERWRITERS CERTIFICATE
N.B.F.U. No. N728232

Burner Permit No. .... Cesspool Permit No. ....
Electrical Certificate No. .... (hereto attached)
Signed .... [signature]
Address ....

No Certificate of Occupancy will be issued unless Application is complete *and the fee is paid*. See reverse side. All payments by check or money order, payable to Town of Oyster Bay Building Department.

Top Soil Aff. of Super.
Lumber 4
Highway ✓
Final Survey ✓

deposes an

PIF A15025 C/O 1/17/61

ab

App. 6022
Receipt 6781

CERTIFICATE OF OCCUPANCY

No. 13654

TOWN OF OYSTER BAY BUILDING DEPARTMENT
OYSTER BAY, NASSAU COUNTY, N. Y.

Corrugated Container Corp

ISSUED TO OWNER [illegible] DATE January [illegible], 1961
NAME [illegible]
STREET ADDRESS [illegible] BUILDING PERMIT No. [illegible]
POST OFFICE [illegible] CESSPOOL PERMIT No.
PLUMBING PERMIT No.
FOR BUILDING LOCATED ON THE TAX OIL BURNER PERMIT No.
MAP OF THE TOWN OF OYSTER BAY IN APPEAL BOARD No.
SECTION 15 BLOCK [illegible] LOTS [illegible] SCHOOL DIST. Zone [illegible]

This CERTIFIES that the Building located at south end of [illegible] Drive [illegible] south of Elton Way, Syosset, N. Y.

was constructed substantially in accordance with the plans filed for the above Building Permit and to all requirements of The Building Zone Ordinance and The Building Code of the Town of Oyster Bay and the occupancy is limited to the following use: [illegible] Industrial Building

NOTE: PLACES OF PUBLIC ASSEMBLY MUST HAVE AN ADDITIONAL CERTIFICATE OF COMPLIANCE, RENEWED YEARLY.

SHOULD THE OCCUPANCY CHANGE FROM THE ABOVE LIMITATION OF USE, APPLICATION MUST BE MADE FOR NEW CERTIFICATE.

TOWN OF OYSTER BAY BUILDING DEPARTMENT

UNDERWRITERS CERTIFICATE
N.B.F.U. No. [illegible]

NASSAU COUNTY COMMERCIAL PROPERTY RECORD CARD

SECTION 15 BLK. 157 LOT 45 CONDO BLDG. CONDO UNIT TOWN 03 S.D. 14 CARD NO. 1 OF 1

PROPERTY ADDRESS 177 EEN WAY

OWNERS NAME RU REALTY CO.

HISTORY NOT

ASSESSED LAND 245000 ASSESSED TOTAL 688100

~~1-2-3-10-23-30-33-39-B-63-A-10~~

58P -4 688100

~~NYS EX CODE~~

PROPERTY USE CODE 440 04

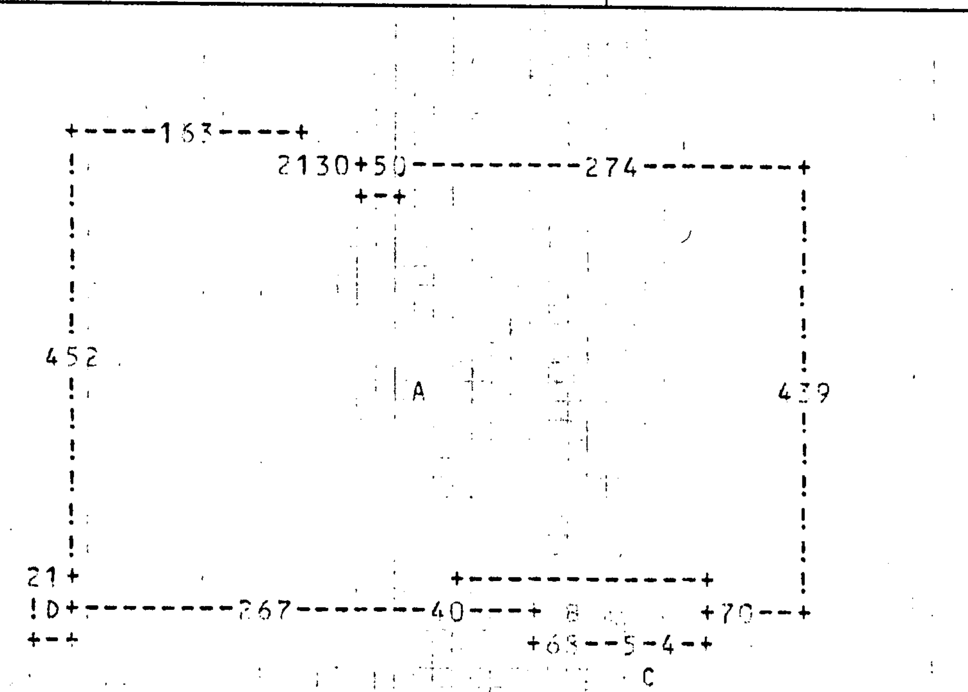
CAD 355
VILLAGE
ZONING IH
RATE 583
VIDEO # 3972

DATE OF LAST SALE 8/01/85
AMOUNT OF SALE 439965
LIBER & PAGE 9498-024

1994 ASSESSMENT ROLL
CARD PRINTED MAR.-01-94
ROLL LIBR & PG 10182-480

CHANGE DATE & TIME 12/16/92
CHANGE ORDER #

LAST MAINT. DATE 1/03/91
REASON



SKETCH SUMMARY

	GROUND AREA		DESCRIPTION
ADDITION A	212162	1	BR&CB
ADDITION B	11326	1	BR&CB
ADDITION C	318		CPY
ADDITION D	1323		CPY&L DK
ADDITION			
ADDITION			
ADDITION			
ADDITION			
ADDITION			

L/S: 2.10

SITE DATA AND VALUATION

SUB	TYP	OCC	RTG	SIZE	RATE	DF	ADJUSTMENTS	EST VALUE
0	A	511-525	3	10.78	350000		M-15%	3207050
	-							
	-							
	-							

TOTAL 3207100

STREET TYPE
C 1-
3-

ASSOCIATED PARCELS & OCC
2-
4-

VALUE INDICATIONS

1	RCNLD	8823700	---
2	INCAP	8699200	---
3	GROSS	9415600	---
4	COMPS	9313900	---
LAND ALLOC*		3062500	

CORRELATED VALUE * 8601250

ASSESSED LAND 245000

ASSESSED TOTAL 688100

BUILDING DATA

01	BUILDING ID	1A	1B
02	MAX STY HGT	1.0	1.0
03	FLOOR KEY	F	F
04	# FLOORS	1.0	1.0
05	OCCUPANCY	525	511
06	RENT. UNITS	1	*
07	STRUC CLASS	C	C
08	EXT WALLS	2	2
09	HEATING/AC	99	90
10	QUAL GRADE	C	C
11	1 GFA	11326	212162
12	TOTAL GFA	11326	212162
13	FLOOR HGT	12	20
14	L/F WALLS	237	1838
15	BSMT FLR%		
16	BSMT UTIL		
17	YEAR NEW	1966	1966
18	YEAR RENOV		1990
19	RENOV RTG		2
20	CONDITION	AV	G
21	OBS AGE	20	10
22	STATUS	0	0
23	P/A RATIO	2.09	.86
24	F ADJ AREA	11326	212162
25	F APPL RATE	61.23	24.48
26	U ADJ AREA		
27	U APPL RATE		
28	TOT WGT FAC	1.00	1.00
29	CST/DSN FAC		

SALE DATE	SALE PRICE	BOOK	PAGE	U	C	J	NP	V
8/85	439965	9498	24		U	H		00
/								00

INCOME ESTIMATE

#	OCC	FLR	FIN	NO.OF UNITS	TAI	S	ECON RENT	XP
1	525	1	D21	11326 GFA	2	X	11.55	35
	INDUSTRIAL OFFICES							
2	511	1	U11	212162 GFA	3+	X	7.04	16
	GENERAL WAREHOUSE							
3								
4								
5								
6								
7								
8								

EST. EFFECTIVE GROSS INCOME 1624435
ESTIMATED NET INCOME (AVE 22.4 %) 1339671
CAP .154 (.103 + .051) IND VALUE 8699200
GRM 5.800 IND VALUE 9415600

---NOTES---

LIN PAC CORRUGATED CONTAINER CORP
M.V. PED. $ 250,000.

MARKET VALUE ADJUSTMENTS

CODE	AMOUNT
(__)	--------
(__)	--------
(__)	--------
(__)	--------

FACTOR 1.00

1 +ADD LND 6 -TO CURE
2 +ADD IMP 7 +OT ADDN
3 +ADD L+I 8 -OT EXCL
4 -ALLOCTN 9 -INCOMPL
5 -NON-TAX

IMPROVEMENT VALUATION

ITEM	RCN	CF	RCNLD
1	6447915	88%	5674165
2	4716		2358
3	7418		3709
YI	486390		231925
TOTAL	6946439		5912200
LESS 5% ECON =			5616600

SPECIAL FEATURES, COST REFINEMENTS AND MISCELLANEOUS IMPROVEMENTS

BID	CD	UNITS	TYP	DESCRIPTION	Q	C
1A	312	318	TEF	CPY-TYPCL ENT-FINSHD	C	3
1B	312	1323	TSU	CPY-TYPL SVC-TYP-UNF	C	3
1B	313	2646	SCC	PLTFM DCK-CO/CO FRAM	C	3
2	508	180	C30	UT BLDG-C BK30+/-PA	C	3
3	508	315	C25	UT BLDG-C BK25+/-PA(	C	3
	410	2800	B06	CNLK FNC-STD GG-6'BR	C	2
	401	234000	BTP	YARD PAVING-BLACKTOP	C	3
	510	36	F65	GRD/GT HSE-FR65+/-PA	C	3
1A	118	223488	WP6	SPRKLR WP - GROUP 6	C	3
	403	600	100	RR SIDNG-HVY WT-100#	C	3

[illegible] RESEARCH, INC.
(516) 358-9400 820 Hempstead Turnpike • Franklin Square, New York 11010 Fax (516) 358-5050

50 YEAR DEED AND LEASE CHAIN

MARCH 9, 1994

GMES-NY0029008

RE: 300 MICHAEL DRIVE, SYOSSET

SECTION: 15 BLOCK: 157 LOT(S): 46

OWNER: RUSER REALTY TAX CLASS: 710.14

DEED
GRANTOR- PAUL SERWITZ, CHARLES SERWITZ, EDITH RUBINSTEIN & RUSER REALTY CO.
GRANTEE- RUSER REALTY CO.
DATED- 12/12/91 RECORDED 05/05/92 LIBER-10182 PAGE 480

DEED
GRANTOR- DUPONT ASSOCIATES, INC.
GRANTEE- PAUL SERWITZ, CHARLES SERWITZ, EDITH RUBINSTEIN & RUSER REALTY CO.
DATED- 08/01/83 RECORDED 08/31/83 LIBER-9498 PAGE 24

ASSIGNMENT OF LEASE
GRANTOR- GREAT AMERICAN - CORRUGATED CONTAINER CORP.
GRANTEE- LINPAC CORRUGATED CONTAINER CORP.
DATED- 03/31/80 RECORDED 04/08/80 LIBER-9262 PAGE 385

SUB-LEASE
GRANTOR- GREAT AMERICAN - CORRUGATED CONTAINER CORP.
GRANTEE- LINPAC CORRUGATED CONTAINER CORP.
DATED- 03/31/80 RECORDED 04/08/80 LIBER-9263 PAGE 378

LEASE
GRANTOR- RUSER REALTY CORP.
GRANTEE- COLUMBIA CORRUGATED CONTAINER CORP.
DATED- 05/01/76 RECORDED 04/08/80 LIBER-9263 PAGE 374

ASSIGNMENT OF LEASE
GRANTOR- RUSER REALTY CORP.
GRANTEE- PAUL SERWITZ, CHARLES SERWITZ, EDITH RUBINSTEIN & RUSER REALTY CO.
DATED- 05/28/66 RECORDED 04/08/80 LIBER- 9263 PAGE 362

TECH RESEARCH, INC.

820 Hempstead Turnpike • Franklin Square, New York 11010

(516) 358-9400

Fax (516) 358-5050

ASSIGNMENT OF SUB-LEASE
GRANTOR- PAUL SERWITZ, CHARLES SERWITZ, EDITH RUBINSTEIN & RUSER REALTY CO.
GRANTEE- RUSER REALTY CO.
DATED- 05/08/66 RECORDED 04/08/80 LIBER-9263 PAGE 368

DEED
GRANTOR- NEWPORT ASSOCIATES, INC.
GRANTEE- DUPONT ASSOCIATES, INC.
DATED- 01/06/75 RECORDED 05/19/75 LIBER-8801 PAGE 60

DEED
GRANTOR- SOL GOLDMAN, IRVING GOLDMAN
GRANTEE- NEWPORT ASSOCIATES
DATED- 10/26/72 RECORDED 11/01/72 LIBER-8460 PAGE 389

DEED (CORRECTION DEED)
GRANTOR- CHASE MANHATTAN BANK
GRANTEE- SOL GOLDMAN, IRVING GOLDMAN
DATED- 10/25/72 RECORDED 11/01/72 LIBER-8460 PAGE 383

DEED
GRANTOR- CHASE MANHATTAN BANK
GRANTEE- SOL GOLDMAN, IRVING GOLDMAN
DATED- 06/16/72 RECORDED 06/23/72 LIBER-8399 PAGE 207

DEED
GRANTOR- CHASE MANHATTAN BANK
GRANTEE- CHASE MANHATTAN BANK
DATED- 04/23/69 RECORDED 07/18/69 LIBER-8010 PAGE 147

DEED
GRANTOR- CHASE MANHATTAN BANK
GRANTEE- CHASE MANHATTAN BANK
DATED- 06/01/64 RECORDED 06/18/64 LIBER-7284 PAGE 413

LEASE
GRANTOR- GEORGIA-PACIFIC CORP.
GRANTEE- RUSER REALTY CORP.
DATED- 02/28/63 RECORDED 02/13/64 LIBER-7250 PAGE 417

LEASE
GRANTOR- CHASE MANHATTAN BANK
GRANTEE- GEORGIA-PACIFIC CORP.
DATED- 02/28/63 RECORDED 02/13/64 LIBER-7250 PAGE 422

TECH RESEARCH, INC.
820 Hempstead Turnpike • Franklin Square, New York 11010
(516) 358-9400
Fax (516) 358-5050

DEED
GRANTOR- RUSER REALTY CORP.
GRANTEE- CHASE MANHATTAN BANK
DATED- 02/01/63 RECORDED 02/06/63 LIBER-7125 PAGE 177

NOTE: FORMERLY KNOWN AS SEC: 15 BLOCK: G LOT: 44
DEED
GRANTOR- MICHAEL FORTE
GRANTEE- RUSER REALTY CO.
DATED- 05/09/60 RECORDED 05/12/60 LIBER-6703 PAGE 495

NOTE: FORMERLY KNOWN AS PART OF LOT 35 & 42
DEED
GRANTOR- ARTHUR RAGOZZINO
GRANTEE- MICHAEL FORTE
DATED- 11/17/55 RECORDED 11/28/55 LIBER-5922 PAGE 322

NOTE: LOT 35 FORMERLY KNOWN AS LOT 2
LOT 42 FORMERLY KNOWN AS LOT 3
CHAIN FOR LOT 2
DEED
GRANTOR- GLADYS ANGELINI
GRANTEE- ARTHUR RAGOZZINO
DATED- 09/01/55 RECORDED 09/09/55 LIBER-5871 PAGE 327

DEED
GRANTOR- ARTHUR SEGRETS
GRANTEE- ARTHUR RAGOZZINO
DATED- 09/01/55 RECORDED 09/09/55 LIBER-5871 PAGE 325

DEED
GRANTOR- ANNA NASO
GRANTEE- ARTHUR RAGOZZINO
DATED- 09/07/55 RECORDED 09/09/55 LIBER-5871 PAGE 335

DEED
GRANTOR- AMELIA BOLL
GRANTEE- ARTHUR RAGOZZINO
DATED- 09/07/55 RECORDED 09/09/55 LIBER-5871 PAGE 333

DEED
GRANTOR- ELEANOR METZ
GRANTEE- ARTHUR RAGOZZINO

820 Hempstead Turnpike • Franklin Square, New York 11010
(516) 358-9400
Fax (516) 358-5050

DATED- 09/07/55 RECORDED 09/09/55 LIBER-5871 PAGE 331

PAGE 4

DEED
GRANTOR-MARY ROGERS
GRANTEE- ARTHUR RAGOZZINO
DATED- 09/07/55 RECORDED 09/09/55 LIBER-5871 PAGE 329

DEED
GRANTOR- FRANK DI NARDO, MARIA DI NARDO
GRANTEE- ARTHUR RAGOZZINO
DATED- 10/14/36 RECORDED 11/08/37 LIBER-1955 PAGE 331

DEED
GRANTOR- JOSEPH SEGRETO
GRANTEE- FRANK DI NARDO
DATED- 08/01/32 RECORDED 08/13/37 LIBER-1694 PAGE 333

NOTE: CHAIN FOR LOT 3
LEASE
GRANTOR- MICHAEL FORTE
GRANTEE- DANEGA STORES CORP.
DATED- 02/05/59 RECORDED 02/09/59 LIBER-6497 PAGE 147

LEASE
GRANTOR- MICHAEL FORTE
GRANTEE- ELSIN ELECTRONICS CORP.
DATED- 08/13/58 RECORDED 09/16/58 LIBER-6429 PAGE 381

DEED
GRANTOR- HERMON SELDIN, PAUL SILVERSTEIN
GRANTEE- MICHAEL FORTE
DATED- 10/24/55 RECORDED 11/04/55 LIBER-5909 PAGE 551

DEED
GRANTOR- BANK OF NEW YORK, AS EXECUTOR
GRANTEE- HERMON SELDIN, PAUL SILVERSTEIN
DATED- 04/01/55 RECORDED 04/15/55 LIBER-5770 PAGE 339

DEED
GRANTOR- NEW YORK TRUST CO., AS EXECUTOR
GRANTEE- CATHERINE HOFFMAN, WILLIAM WICKHAN
DATED- 04/30/40 RECORDED 05/02/40 LIBER-2213 PAGE 539

SOIL SAMPLING ANALYSIS
RESULTS AND DISCUSSION

SPIEGEL PROPERTY
SYOSSET, N.Y.

fanning phillips [illegible]

ENGINEERS

SOIL SAMPLING

ANALYSIS RESULTS AND DISCUSSION

SPIEGEL PROPERTY

SYOSSET, NEW YORK

I. Introduction

On January 7, 1987, a remedial soil clean up was completed at the Spiegel Property, 225 Robbins Lane, Syosset, NY, as requested by the Nassau County Health Department. Approximately 20 cubic yards of soil was removed from the site and was fully manifested as per New York State Department of Environmental Conservation requirements.

The events of the field work completed for the remediation were documented in the "Engineering Report for Remedial Soil Clean Up at Spiegel Property, Syosset, New York, January 1987," completed by Fanning, Phillips and Molnar.

II. Remediation Field Work

During the remedial field work, which required the excavation of the soil, a Foxboro Century Gas Chromotagraph was utilized to survey the excavation for the presence of organic vapors. Only three areas within the excavation reported a slight response by Gas Chromotagraph and they were sampled (refer to Figure 1). The results of these soil samples are shown in Table 1 and in Appendix A.

III. Soil Sample Laboratory Results

Soil samples were obtained from the base of the 2' deep excavation at the three locations shown in Figure 1. Samples were collected in 40 ml vials with screw on teflon caps and were immediately preserved on ice. Chain of Custody documents were

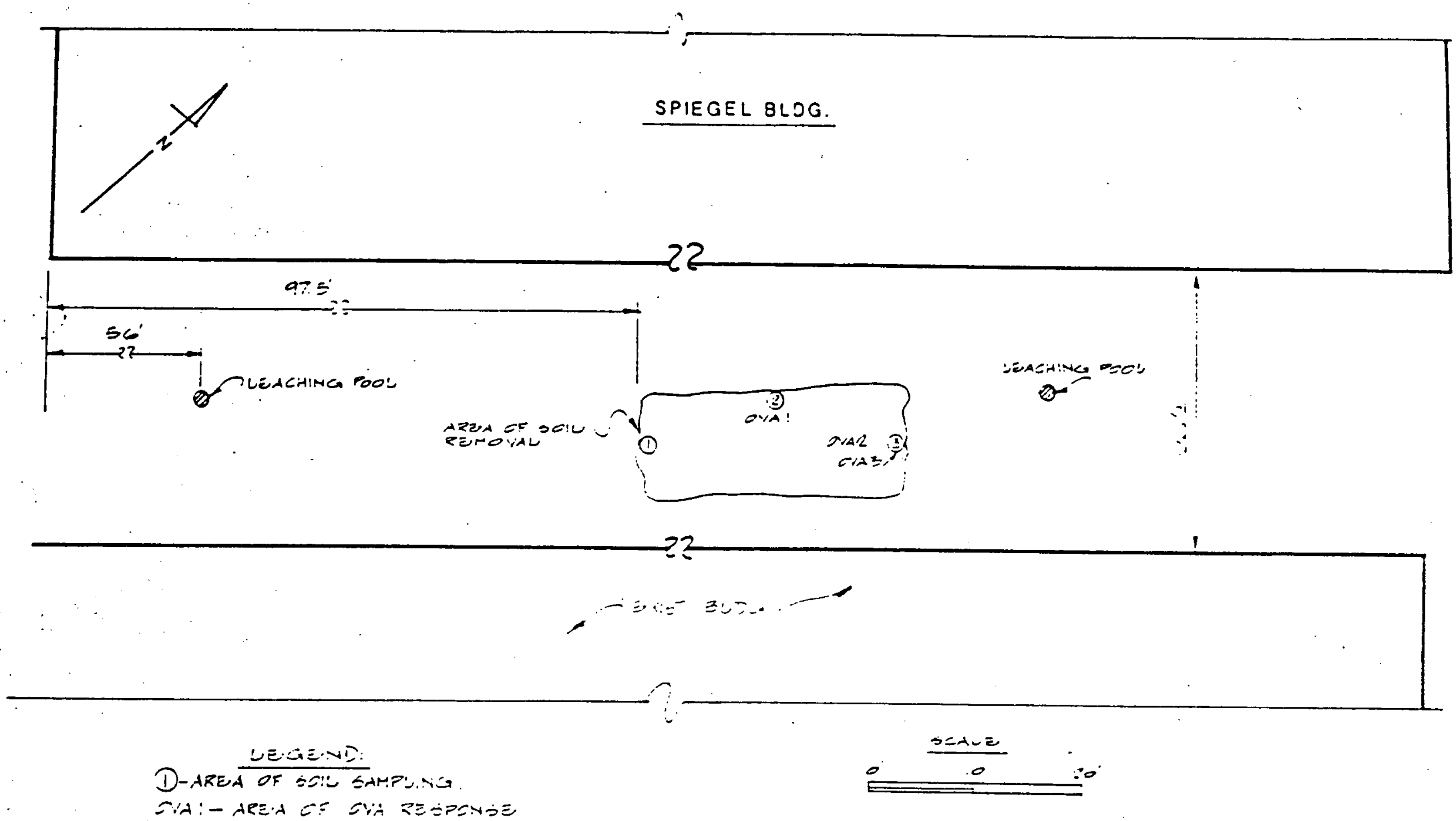


FIGURE 1 LOCATION OF SOIL EXCAVATION, OVA RESPONE & SOIL SAMPLING

completed and are enclosed in Appendix A. Samples were analyzed for the presence of volatile organic carbon compounds and Benzene, Toluene and Xylene compounds.

Positive results for soil sample 1 reported 120 ppb Methylene Chloride, 12 ppb of 111 Trichloroethane, 5 ppb of Tetrachloroethene, and 21 ppb of Benzene. No other parameters were detected. Soil sample 2 reported 18 ppb of Methylene Chloride, 28 ppb of 111 Trichloroethane and 31 ppb of Benzene. No other parameters were detected. Soil sample 3 reported 16 ppb of 11 Dichloroethane, 10 ppb of 1 2 Dichloroethene, 7 ppb of 111 Trichloroethane and 23 ppb of Benzene. No other parameters were detected.

Results of the sediment analysis will be compared to the EPA Toxicity Characteristic Leaching Procedure (TCLP) as documented in the EPA federal Register, Volume 51, No. 9. The TCLP replaces EP Toxicity Test and is intended to identify whether a waste is hazardous and whether it will leach hazardous substances. It was promulgated into law November 7, 1986.

IV. Lab Results Discussion

The TCLP's scope and application, as discussed in the Federal Register, was designated to determine the mobility of both organic and inorganic contaminants present in liquid, solid and multiphasic waste. Appendix B encloses the list of the chemicals that is regulated and their regulatory levels to be compared to after the TCLP test had been completed. It is noted that the analysis completed for the soil samples at the site are a total analysis result.

Of the compounds detected in the soil (Methylene Chloride, 111 Trichloroethane, Tetrachloroethene, Benzene, 11 Dichloroethane and 1 2 Dichloroethene), regulatory levels were listed for all the compounds except 11 Dichloroethane and 1 2 Dichloroethene. The two previously mentioned compounds were only detected in soil sample 3 and at the low levels of 16 and 10 ppb respectively. All the other compounds detected were well below the listed regulatory level at each of the sampling locations.

V. Conclusions

Total laboratory analysis for Volatile Organic Carbon Compounds and Benzene, Toluene and Xylene Compounds within the soil samples obtained from the base of the excavation has shown the contaminants present are at levels well below the regulatory levels as proposed by the Toxicity Characteristic Leaching Procedure (TCLP). Two compounds not regulated by the TCLP procedure were found at only one location and at low levels respectively (26 ppb total VOC). The TCLP procedure was designated to determine the mobility of contaminants present in solid, liquid and multiphasic wastes. The contaminant levels detected within the soil samples are well below the regulatory levels as established for these organic compounds.

TABLE 1 - SOIL ANALYSIS

All results are in parts per billion (ug/Kg)

PARAMETER	SAMPLE LOCATION 1	2	3	TCLP ACTION LEVEL(ppb)
Vinyl Chloride	<1	<1	<1	50
Freon 113	<1	<1	<1	-
Methylene Chloride	120	18	<2	1,400
11 Dichloroethane	<2	<2	16	-
12 Dichloroethene	<2	<2	10	-
Chloroform	<1	<1	<1	70
111 Trichloroethane ✓	12	28	7	30,000
Carbon Tetrachloride	<1	<1	<1	70
12 Dichloroethane	<2	<2	<2	400
Trichloroethylene	<1	<1	<1	70
12 Dichloropropane	<2	<2	<2	-
Bromodichloromethane	<1	<1	<1	-
Tetrachloroethene	<5	<1	<1	100
Chlorodibromomethane	<1	<1	<1	-
Bromoform	<2	<2	<2	-
Benzene	21	31	23	70
Toluene	<2	<2	<2	14,400
Ethyl Benzene	<1	<1	<1	-
m Xylene	<2	<2	<2	-
o+p Xylene	<4	<4	<4	-
m Dichlorobenzene	<2	<2	<2	-
o Dichlorobenzene	<2	<2	<2	4,300
p Dichlorobenzene	<2	<2	<2	10,800

153 77

Note: - indicates no regulatory level established.

NASSAU COUNTY DEPARTMENT OF HEALTH

240 Old Country Road - Mineola, New York 11501

To : Roy N. Cacciatore, Commissioner
Department of Commerce & Industry

Date: June 11, 1986

From : Department of Health

Subject : Contamination of Soil on Property owned by Jerry Spiegel Associates on Robbins Lane, Syosset (Section 15, Block 161, Lot 28) Next to 233-5 Robbins Lane

During cleanup of contaminated site adjacent to the above referenced one, it was discovered that the contamination extended to the Jerry Spiegel owned property; specifically on a driveway between the two sites. The contaminant is 1,1,1 trichloroethane, a solvent cleaner used by many industries in the county.

The Spiegel site is the location of a presently unoccupied warehouse facility. There is no evidence that Spiegel caused the contamination. Also, we cannot prove the adjacent facility caused it. Consequently, we must direct the present owners to clean up. Recent correspondence to Spiegel is attached for your information. Intercession by your Department with Jerry Spiegel Associates to encourage voluntary compliance might be helpful.

Francis V. Pader
Francis V. Pader, P.E., M.C.E.
Deputy Commissioner

FVP:LS:rc

HD54 - 5/69 M 779 - 7-70

REMEDIAL INVESTIGATION

at

Space Machines Corp.
233-5 Robbins Lane
Syosset, N.Y.

Prepared by:

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
One Aerial Way
Syosset, NY 11791

February 1986

PROJECT STAFF

Ivan Pouschine, Jr.
Lockwood, Kessler & Bartlett, Inc.
Project Manager
Sr. Environmental Engineer

Rose Pelino
Lockwood, Kessler & Bartlett, Inc.
Project Engineer
Civil Engineer

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SECTION I

EXECUTIVE SUMMARY

Space Machines Corporation (SMC), located at 233-5 Robbins Lane Syosset, N.Y., as shown in Figure 1-1, performs metal machining operations on laths and similar equipment and utilizes volatile organic cleaning fluids in its normal operations. According to SMC, waste fluids are presently discarded into appropriate barrels, located on the premises, and periodically hauled away for disposal. During a routine survey by the Nassau County Department of Health (NCDH), an area of discolored soil was noted outside the rear entrance to the Space Machine facility. Subsequent testing indicated that the soil contained elevated levels of volatile organic compounds and an immediate clean-up was requested by NCDH. Clean-up was performed by Space Machines Corp. (SMC) soon after, but the Health Department was not notified and did not observe the removal activity. As a result, NCDH further requested that a remedial investigation be undertaken to determine the extent of contamination in the remaining soil.

Lockwood, Kessler & Bartlett, Inc., Consulting Engineers of Syosset, were retained by the owner of the building at 233 Robbins Lane, K.L.W.R.L. Co., to perform the investigation. The investigation included the drilling of soil borings and the collection and analyses of soil samples for the

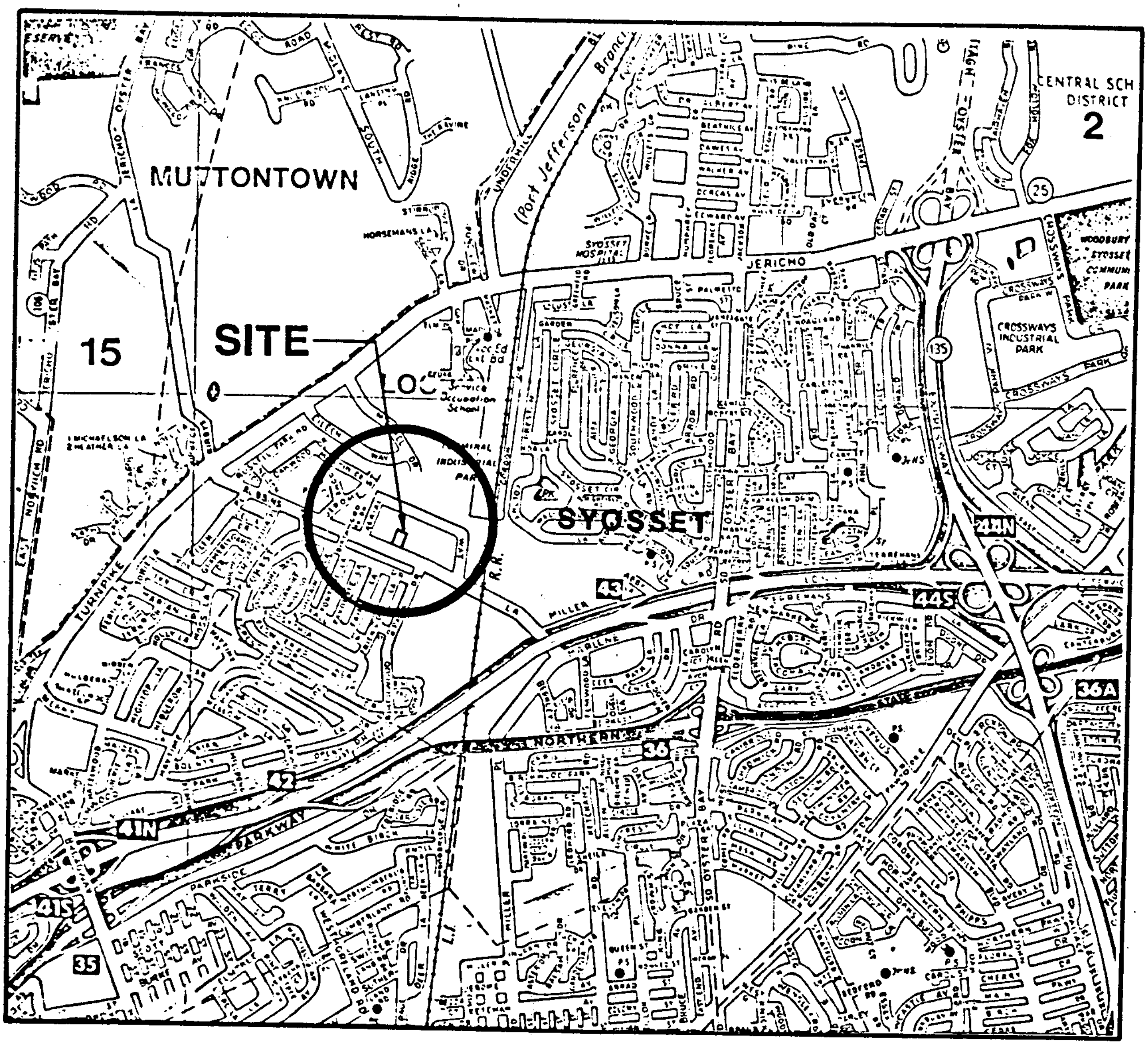


FIGURE 1-1

LKB

SITE LOCATION MAP

presence of contaminants. Results of the boring and testing program indicate that an area approximately 20 feet by 5 feet, located outside the rear door to the SMC premises, is contaminated with halogenated and non-halogenated volatile organic compounds.

Considering these results, it is recommended that the contaminated soils be removed and replaced with clean fill. This will involve the excavation of earth and the hauling away of the excavated material by a licensed hauler to an approved hazardous waste landfill. It is also recommended that during excavation, the remaining soil be tested in the field using a TIP or OVA meter to ascertain that contaminated soils are removed to the extent feasible. After replacment of the excavated earth with clean fill, it is further recommended that the remaining unpaved areas of the site, in the immediate vicinity of SMC, be paved. A cost estimate for the recommended remedial activities is provided in the report.

SECTION II

EVENTS LEADING TO THIS INVESTIGATION

During the course of a routine survey by the Nassau County Department of Health (NCDH) on November 29, 1984, an area of discolored soil was noted outside the rear entrance to Space Machines Corporation (SMC). On April 22, 1985, representatives of NCDH sampled this soil. The sample was analyzed by the NCDH laboratories and found to be contaminated with the following chemicals:

Contaminant	Concentration (ppb)
1,1-Dichloroethane	380,000
1,1,1-Trichloroethane	67,000
Trichloroethylene	570
1,1,2-Trichloroethane	160
Benzene	9,700
Toluene	14,000
Ethylbenzene	1,100
Xylene	5,000

These results, and the required subsequent procedures, were communicated to the owners of the building housing SMC (K.L.W.R.L. Company) in a letter dated September 11, 1985, from Stanley Juczak, Director, Bureau of Land Resources Management, NCDH. The letter requested an immediate clean-up of the visibly contaminated soil and its removal and proper disposal by an industrial waste transporter registered with the New York State

Department of Environmental Conservation (NYSDEC). K.L.W.R.L. Company requested SMC to comply with all NCDH demands and SMC removed about half a foot of soil and disposed of it in a dumpster which was hauled away. In place of the removed soil, SMC had concrete placed along the rear wall of their premises to the roadway forming a sidewalk outside their rear entrance.

Although the NCDH demanded to be notified by SMC prior to any site clean-up activity, they were not notified. As a result, NCDH requested that a remedial investigation be conducted to determine if any contaminated soil remained at the site. In response to a letter from Lawrence Sama of NCDH dated October 24, 1985, K.L.W.R.L. agreed to retain the services of a Professional Engineering firm to prepare and submit a Plan of Investigation to the NCDH. Lockwood, Kessler & Bartlett, Inc. were retained by K.L.W.R.L. and a Plan of Investigation was submitted to NCDH on December 10, 1985. The Plan was approved by NCDH and the investigation was subsequently undertaken on January 21, 1986.

SECTION III

BACKGROUND INFORMATION

3.1 Location and Description of Site

Space Machines Corp. is a tenant in a one story industrial building at 233 Robbins Lane, Syosset, Nassau County (Figure 3-1). Other occupants of 233 include Capgo Limousine Service, Action Automotive, Jomark Color, Robbins Lane Collision and Roger Printing Co., as shown in Figure 3-1.

The main (front) entrance to SMC is located in the southeast portion of the building. The rear entrance, where the discolored soil was discovered by NCDH, is located in the northwest portion of the premises.

Other facilities in the immediate vicinity of 233 Robbins Lane include Ultimate Precision to the northeast (a fabricator of sheet metal), Roger Printing Co. and some retail facilities to the southeast. The retail facilities include Looking Good Fashions, Liberty International Jewelers and Creative Plastercraft.

3.2 Hydrogeologic Setting

SMC is located in an area of Long Island that is underlain by four hydrogeologic units known generally as the Upper Glacial Formation, the Magothy Formation, and the Raritan Clay and Lloyd Sand Members of the Raritan Formation. The units rest on a southeasterly dipping bedrock surface.

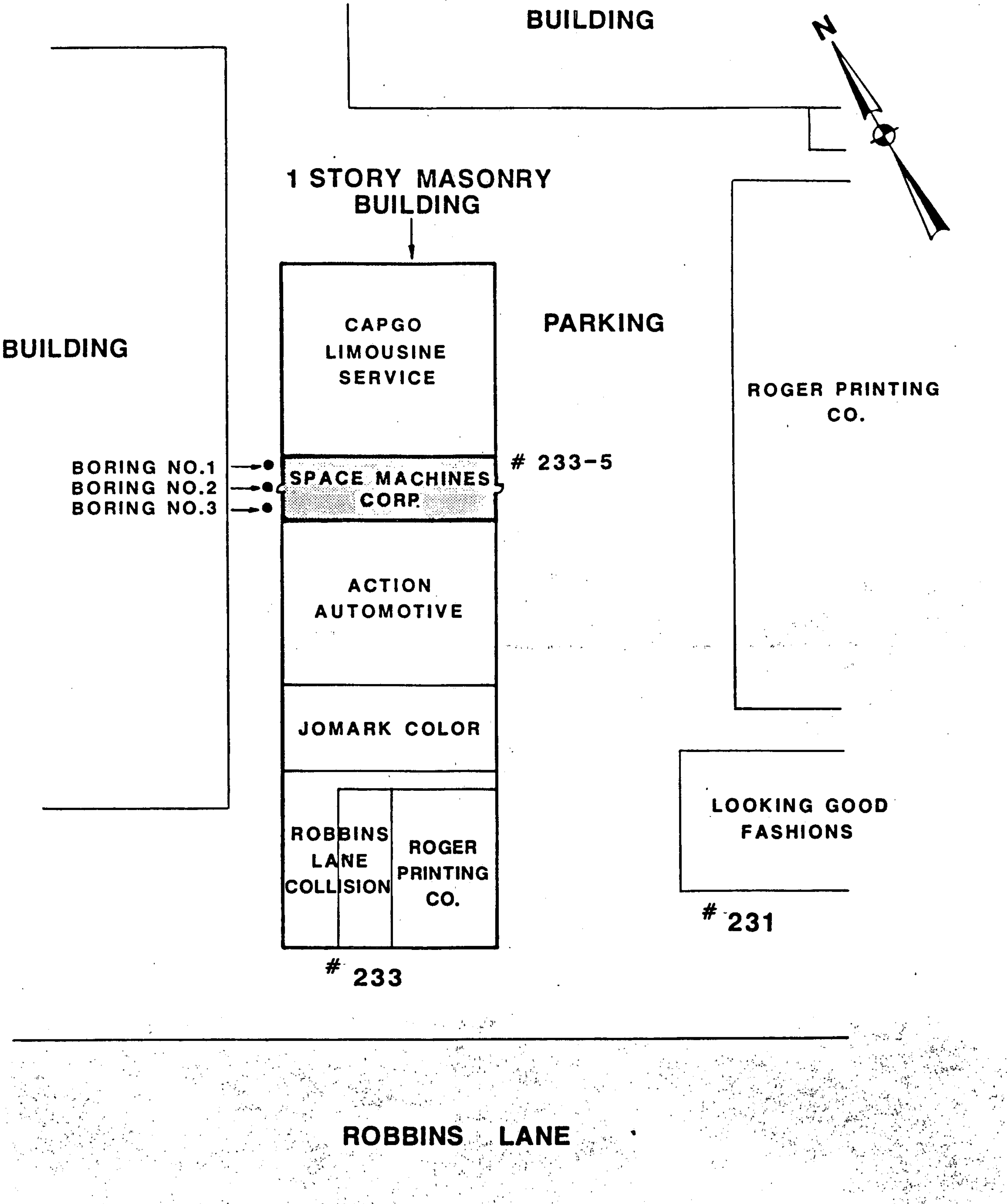


FIGURE 3-1

SITE PLAN

LKB

The Upper Glacial Formation consists chiefly of sand and gravel deposits locally interbedded with clay and silt lenses. The Magothy Formation is composed of interbedded gray, buff and white fine sand and clayey sand and black gray, white, buff and red clay. Gravelly zones are common near the bottom of the formation but are rare in the upper part. The Raritan Clay consists chiefly of gray, red, white and blue clay and silty clay and lenses of sand and gravel. The Lloyd Sand is a stratified deposit comprising discontinuous layers of sand, gravel, sandy clay, silt and clay (Isbister, 1966).

The groundwater table occurs at the site in the Magothy Formation, at approximately 100-110 feet below land surface, or 80-90 feet above sea level (Kilburn et al, 1985). The water bearing stratum within the Magothy Formation is commonly referred to as the Magothy Aquifer. The Lloyd Sand, which underlies the Magothy Formation, is a water bearing formation. The Rariton Clay functions hydraulically as a confining unit separating the Magothy Formation from the Lloyd Sand.

The direction of the horizontal component of groundwater flow at the site is generally from the south-southwest to north-northeast, toward Long Island Sound (Kilburn et al, 1985). The vertical component of groundwater flow occurs from the water table downward into underlying formations. Areas of Long Island in which vertical groundwater flow predominates have been classified as Deep Flow Recharge Zones (Long Island Regional Planning Board, 1978). Regional hydrogeologic zone mapping indicates that the project site is situated within Hydrogeologic Zone No. I, a deep flow recharge zone. Deep flow areas are of special environmental importance because they replenish the waters in the deep aquifers which are the principal long-term source of Long Island's drinking water.

The closest public water supplies to 233-5 Robbins Lane include Magothy wells of the Jericho Water District (JWD) and the Hicksville Water District (HWD). Near the intersection of Jericho Turnpike and Tobie Lane, approximately 3500 feet west of the SMC site, is JWD well N6691. Located approximately 5500 feet southwest of the site are JWD wells N9245 and N7781 located at Jericho Turnpike and Merry Lane, and East Norwich Road and Cedar Swamp Road, respectively. JWD well N8355 is located approximately 5000 feet northwest of the site near Kirby's Lane. The Hicksville well located in the vicinity of the site is N8355. It is situated near Miller Place at Ingram Drive and is 6000 feet south of SMC.

There are no surface water bodies on the site or in the vicinity of the site.

SECTION IV

SCOPE OF WORK

Three borings were drilled on January 21, 1986 by Soil Mechanics of Seaford, N.Y., at the locations indicated on Figure 3-1. Boring No. 2 was located in front of the rear entrance to SMC approximately 3 1/2 feet from the door. Boring Nos. 1 and 3 were similarly drilled 3 to 3 1/2 feet from the building wall and located about 9 feet to the northeast and and southwest, respectively, of Boring No. 2.

Core samples were taken at the existing ground surface and obtained continuously for the depth of drilling. After ten feet, samples were collected at five foot intervals. Sampling was done by use of a standard 2-inch O.D. split spoon sampler having a minimum barrel length of 18 inches. Specimens from each split spoon were placed in airtight glass jars. Samples selected for laboratory analysis were placed in 40-ml glass vials with Teflon faced, rubber lined, caps.

Core samples were examined in the field for discoloration and for the presence of odors from volatile organic compounds. Certain samples were selected for laboratory analysis for the contaminants listed in Table 4-1. Analyses were performed by Ecotest Laboratories, Inc. of North Babylon, in accordance with EPA Manual No. SW 846, Test Methods for Evaluating Solid Waste, Method Nos. 8010 and 8020. Formation data obtained during drilling were recorded in the field by the consultant. These data are provided in the Appendix of this report.

TABLE 4-1

List of Analytical Parameters

Vinyl Chloride
Freon 113
Methylene Chloride
1,1 Dichloroethane
1,2 Dichloroethene
Chloroform
1,1,1 Trichloroethane
Carbon Tetrachloride
1,2 Dichloropropane
Trichloroethylene
1,2 Dichloropropane
Bromodichloromethane
Tetrachloroethene
Chlorodibromomethane
Bromoform
Benzene
Toluene
Ethyl Benzene
m Xylene
o+p Xylene
m Dichlorobenzene
o Dichlorobenzene
p Dichlorobenzene

Final depth of borings were decided in the field based on visual observations and detection of odor. Estimated drilling depths were set forth in the Work Plan. Borings Nos. 1, 2 and 3 were to be drilled to 8, 40 and 8 feet below grade, respectively. Boring No. 1 (located as shown in Figure 3-1) was drilled to 8 feet and a sample collected from 3-4 feet below grade. Boring No. 2 was drilled to 42 feet. Samples were collected at 2-3 feet, 4-5 feet, 7-8 feet, and 21-22 feet below grade, respectively. Representatives of NCDH, present during the drilling, also collected samples from this boring including one at a depth of 16 feet. Boring No. 3 was drilled to 10 feet. Three samples were collected, at 2-3 feet, 4-5 feet, and 8-9 feet below grade. Similarly, samples were collected by NCDH from this boring.

SECTION V

SITE ASSESSMENT

This section presents a review of the results of the soil quality data from the field investigation. The data on soils are presented in the Appendix of this report.

Only one sample was collected from Boring No. 1 for laboratory analysis. Field data obtained during drilling did not indicate the presence of contaminants in the soil. Boring No. 1 was drilled to a depth of 8 feet and a soil sample was collected at the mid point, at a depth of 3-4 feet. The laboratory data (Table 5-1) show that halogenated and non-halogenated organic compounds are generally not present in the soil sample from Boring No. 1 with the exception of one compound present at a concentration just above detection. These results indicate that the soil in the vicinity of Boring No. 1 has not been affected by activities of SMC.

Four soil samples were collected from Boring No. 2 for laboratory analyses. These samples were collected at 2-3 feet, 4-5 feet, 7-8 feet and 20-21 feet below grade. The analytical data indicates that chlorinated compounds are present in the ground at this location to a depth of approximately 8 feet and possibly a few feet deeper, but no further than 16 feet below grade (Table 5-1).

TABLE 5-1

SOIL QUALITY DATA*

ANALYTICAL PARAMETERS		BORING NUMBER 1	BORING NUMBER 2				BORING NUMBER 3		
	DEPTH (IN FEET)	3-4	2-3	4-5	7-8	20	2-3	4-5	9-10
Vinyl Chloride	ug/kg								
Freon 113	ug/kg								
Methylene Chloride	ug/kg								
1,1 Dichloroethane	ug/kg		1,500	2,700			240	28	
1,2 Dichloroethene	ug/kg								
Chloroform	ug/kg						7	14	
1,1,1 Trichloroethane	ug/kg	21	250,000	120,000	150	10	590	190	
Carbon Tetrachloride	ug/kg		67						
1,2 Dichloropropane	ug/kg		980	220			69	93	
Trichloroethylene	ug/kg								
1,2 Dichloropropane	ug/kg								
Bromodichloromethane	ug/kg								
Tetrachloroethene	ug/kg		2,300	1,300			840	500	
Chlorodibromomethane	ug/kg		800	250					
Bromoform	ug/kg								
Benzene	ug/kg								
Toluene	ug/kg		12,000	590	11		520	250	15
Ethyl Benzene	ug/kg								
m Xylene	ug/kg								
o+p Xylene	ug/kg						260	130	
m Dichlorobenzene	ug/kg								
o Dichlorobenzene	ug/kg								
p Dichlorobenzene	ug/kg								

* Concentrations not provided in the table indicate that the parameter of interest was present at a concentration less than its detection limit and possibly not present at all. The detection limit is a function of the limitations of the analytical instrumentation and the physical and chemical testing procedures.

The highest concentrations of volatile organic compounds were present in the soil samples collected at the 2-3 foot depth. Concentrations in the 4-5 foot soil sample were close to one half the concentrations in the 2-3 foot soil samples, indicating a decrease in degree of contamination with increasing depth. The 7-8 foot sample contained minimal amounts of two volatile organic compounds, while the 20-21 foot depth sample had only one contaminant which was just at the detectable limit. No contaminants were found in soil sample collected at the 16 foot depth by NCDH.

Boring No. 3, located southwest of Boring No. 2, contained volatile organic compounds. However, these compounds were present at concentrations signficantly less than those found in Boring No. 2. Soil samples were collected for analysis at the 2-3 foot, 4-5 foot and 9-10 foot depth. Concentrations of contaminants similarly decreased with increasing depth. Only one of the constituents tested was present in the 9-10 foot sample, slightly above detectable limits. Analysis of the NCDH 8 foot depth sample showed no contaminants, indicating that the contaminanted soil is concentrated near the surface and to approximately 6-7 feet below grade.

In summary, the contaminated soil at 233-5 Robbins Lane is located immediately outside the rear entrance door and extends about 10 feet in a southwesterly direction. The level of contamination is greatest just outside the rear door and diminishes with distance away from this area. Soil contamination is greatest near the surface and decreases to background condition at a depth of 8 feet.

[illegible] - See fig 3-1

As set forth in the approved Work Plan, if results of the laboratory analysis indicated significant levels of contaminants in the deep samples, additional borings would be drilled to the groundwater table and monitoring wells installed. As discussed above, the contamination at the site is found near ground surface and extends to only 8 feet below grade. Therefore, additional deeper borings were not required.

SECTION VI

REMEDIAL ALTERNATIVES AND ASSOCIATED COSTS

Data generated from the boring program indicate that an area of soil at the SMC site is contaminated with halogenated and non-halogenated volatile organic compounds. Remedial activities should be conducted at the site to eliminate possible impacts of the contaminated soils on the environment. Remedial activities considered for the site are 1) removal of the contaminated soils off-site to a secure hazardous waste landfill, 2) surface sealing or capping, 3) no-action, and 4) treatment in-place alternatives.

Excavation and off-site disposal of the material is a common remedial technique and is widely used with contaminated soil and sludge. Excavation is usally performed by mechanical means (backhoe or dragline) and the material loaded onto trucks and carted to a licensed facility designated to receive hazardous wastes. This remedial measure is recommended for control of the contaminated soils at the SMC site.

Surface sealing or capping is the method by which contaminated materials are covered to prevent air pollution, and surface water infiltration and subsequent seepage to the underlying aquifers. This method is also recommended as a remedial activity at this site.

The no action alternative is the do nothing option, which does not reduce or eliminate the impact of the contaminated soils on the environment. Therefore this alternative is not recommended at the SMC site.

The treatment-in-place alternative would require recycling water through the contaminated soils which would cause a degradation of ground water quality. Environmentally and economically this alternative is detrimental and undesirable at this site.

As discussed in Section 5, data collected during the boring program indicate that soil contamination in the vicinity of SMC is concentrated near the rear door of the premises and extends horizontally about 10 feet in a southeasterly direction. Vertically, contaminated soils are present from near surface to approximately 8 feet below grade.

Following an attempted cleanup along the rear building wall of their premises, SMC had a concrete sidewalk installed between the rear wall and the asphalt roadway on the remaining portion of the alley. Spillage of solvents by SMC, prior to the placement of concrete, primarily affected the five foot unpaved area adjacent to the building wall. Considering the lateral spread of contaminants in the soil as a result of surface water infiltration, it is recommended that soil outside the SMC facility be removed from near the wall to approximately one foot beyond the asphalt and concrete interface. Along the wall, it is recommended that excavation take place from midway between Boring Nos. 1 and 2, which is approximately 4 feet from Boring No. 2, to 14 feet beyond Boring No. 2, which is approximately 5 feet beyond Boring No.3. Vertically, soil should be excavated from surface to no greater than 4 feet below grade at the building wall so as not to undermine the structural integrity of the building foundation. Excavation below the bottom of the foundation footing should be no closer than one foot from the footing. Excavation depth should increase a foot with each foot and a half of distance from the building footing reaching no lower than 7 foot depth at 5.5 feet from the building. During excavation, selected soil specimens should be collected and tested in the field using a TIP or OVA meter to ascertain that all contaminated soils outside the building stability zone have been removed. All contaminated soils excavated shall be placed in drums and hauled away by a licensed hauler of hazardous waste to a secure landfill.

Upon removal of the contaminated soil and replacement by clean fill, unpaved areas in the vicinity of Space Machines Corp. should be paved or asphalted to prevent percolation of any remaining minimal concentration contaminants and to preclude seepage should accidental spillage occur in the future. A cost estimate for removal of contaminated soils and subsequent asphalting is given in Table 6-1.

NASSAU COUNTY DEPARTMENT OF HEALTH

240 OLD COUNTRY ROAD, MINEOLA, N.Y. 11501

JOHN J. DOWLING, M.D., M.P.H.
Commissioner

FRANCIS V. PADAR, P.E., M.C.E.
Deputy Commissioner
Division of Environmental Health

FRANCIS T. PURCELL
County Executive

September 11, 1985

K.L.W.R.L. Co.
c/o Lazarus Associates
6901 Jericho Turnpike
Syosset, NY 11791

Att: Mr. Arthur Field

Re: Violations at 233-5
Robbins Lane, Syosset, NY 11791
(Space Machines Corp.)
Section 15, Block 161, Lot 29

Dear Mr. Field:

This is in confirmation of my telephone discussion with you of August 29, 1985 and my meeting at the above referenced site with your representative, Mr. Dominick Vissichelli on September 3, 1985.

Nassau County records indicate your organization is the owner of the above referenced property. This was confirmed by Mr. Vissichelli. During the course of a routine survey on November 29, 1984 of the Space Machines Corp., tenants on site, a representative of this department noted an area of discolored soil outside the rear entrance of the facility.

On April 22, 1985 our representatives sampled the soil from the area noted above. The sample was analyzed by the Nassau County Department of Health Laboratories and found to be heavily contaminated with chemicals as follows:

Contaminant	Concentration (parts per billion)
1,1-Dichloroethane	380,000
1,1,1-Trichloroethane	67,000
Trichloroethylene	570
1,1,2-Trichloroethane	160
Tetrachloroethylene	9700
Benzene	1600
Toluene	14,000
Ethylbenzene	1100
Xylene	5000

The presence of the chlorinated contaminants makes this soil a hazardous waste. The potential leaching of these contaminants to the groundwater poses a significant threat to the environment. The presence of these chemicals in the soil constitutes a violation of Article 27 of the Environmental Conservation Law as follows:

Section 27-0913 - Storing hazardous wastes on site without a permit.

Consequently, it will be necessary for you to perform an immediate cleanup of the obvious contamination, to have the site investigated to determine the extent of the contamination and for a remedial plan to be developed and implemented. A professional engineer licensed to practice in the State of New York must be retained to assist you in the investigative planning and implementation of this work. The soil cleanup must be done within two weeks of this letter date.

The visibly contaminated soil is to be removed immediately and disposed of properly by an industrial waste transporter registered with the New York State Department of Environmental Conservation. To verify the extent of cleanup and/or the need for further investigation and cleanup, a soil sample is to be then taken and analyzed for contaminants found by this department and as noted above. Further work will be dependent on the results of the soil sample and will be the subject of additional directives to you.

This department is to be notified at least 3 days in advance of any site investigation or remedial activity in order to observe such activity and to have the opportunity to split samples for analysis.

Should this work not be done expeditiously and in accordance with our directives, then it will be necessary for us to refer this case to the New York State Department of Environmental Conservation for appropriate legal action.

If you have any questions please contact this office at 535-2406.

Very truly yours,

Stanley Juczak

Stanley Juczak, P.E.
Director
Bureau of Land Resources Management

SJ:LS:dm
cc: T. Sanford - DEC
P. Barbato - DEC
M. Hamann - NCDH ✓
M. Narducci - Space Machines Corp.
Roy N. Cacciatore, Commissioner
Dept. of Commerce & Industry

Division of Hazardous Waste Management
P. O. Box 2063
Harrisburg, PA 17120

Rev. 5/84

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NYD044731334 Manifest Document No.

2. Page 1 of

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Lazarus Associates
233 Robbins Lane, Syosset, NY 11791

4. Generator's Phone (516) 364-2000

5. Transporter 1 Company Name
John Pfrommer, Inc.

6. US EPA ID Number PAD002781072

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
Waste Conversion Inc.
2869 Sandstone Drive
Hatfield, PA 19440

10. US EPA ID Number PAD085690592

A. State Manifest Document Number PAB 00407735

B. State Gen. ID SAME

C. State Trans. ID PA-AH

D. Transporter's Phone (215) 383-3051

E. State Trans. ID PA-AH

F. Transporter's Phone ( )

G. State Facility's ID Not Required

H. Facility's Phone (215) 822-8996

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste Solid NOS ORM-E NA9189	001	TT	40,000	P	F002
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code)
a.
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

WC-1912 Soil contaminated with trace solvent

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and all applicable State laws/regulations.

Printed/Typed Name: Dominic Vissichelli
Signature:
Date Month Day Year: 05 27 86

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: David L. Henry
Signature: David L. Henry
Date Month Day Year: 05 27 86

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name
Signature
Date Month Day Year: 05 86

Form 8700-22 (3-84)

COPY 6 - Destination State - Mailed by Generator

PAB00407735

Nassau County Department of Health

Company Space Machine Corp. | SIC Code 3679 | Water Dis[illegible]

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition of Chemical
1,1,1 Trichloroethane		5	X		degrease	evaporates small amt. to dumpster
Empire Solution		2½	X		Clean machines	
Cutting oils ~~[illegible]~~ (Missile lube)		55	X		Cool tools	replenished
~~Hydralic oil~~ Hydralic oil		5	X		in machines	"
Kerosene		10	X		degreaser	on rags + [illegible] used

RECOMMENDED ACTION

FOR OFFICE USE ONLY

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☐ SPDES Application
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ No Action
9 ☐ Other (specify)

H 651B 3/77

Chemical Solvent Waste Report Nassau County Department of Health Bureau of Environmental Management 240 Old Country Road Mineola, N.Y. 11501	Name: Loral Fairchild Systems	Article XI Permit Number: 006
	Address: 300 Robbins Lane, Syosset, NY 11791	Report Period: 1993

List all chemicals and/or solvents purchase during the reporting period.
Indicate for each the purpose or use, trade name or supplier, and the quantity purchased.

Name of Chemical or Solvent	How is the Chemical or Solvent Used?	Trade Name or Supplier	Quantity Purchased
1,1,1-trichloroethane	Degreasing & Printed Circuit Board Fabrication	Captree Chemical	1210 gallons
Blaco-Solv 404	Degreasing & Printed Circuit Board Fabrication	Baron-Blakeslee	495 gallons
Flux Thinner #120	Printed Circuit Board Fabrication	Kester	400 gallons
Flux # 186	Printed Circuit Board Fabrication	Kester	202 gallons
1A33 Polyurethane Coating	Printed Circuit Board Fabrication	Humiseal	16 gallons
601 Acrylic Thinner	Printed Circuit Board Fabrication	Humiseal	55 gallons
Acetone	Spray Painting	Captree Chemical	59 gallons
1B31-66 Acrylic Coating	Printed Circuit Board Fabrication	Humiseal	11 gallons
Deoxidizer 7	Alodine Plating	Parker-Amchem	225 pounds
Alodine 1200	Alodine Plating	Parker-Amchem	20 pounds
1B31 Acrylic Coating	Printed Circuit Board Fabrication	Humiseal	17 gallons
521 Thinner	Printed Circuit Board Fabrication	Humiseal	23 gallons
Flux-Off NR 2000 (Alcohol Blend)	Printed Circuit Board Fabrication	Chemtronics	60 gallons
Ethyl Alcohol	Printed Circuit Board Fabrication	Captree Chemical	220 gallons
Denatured Alcohol	Printed Circuit Board Fabrication	Captree Chemical	55 gallons
Isopropyl Alcohol	Printed Circuit Board Fabrication	Fisher Scientific	

(continued on reverse)

<u>Chemical Solvent Waste Report</u> Nassau County Department of Health Bureau of Environmental Management 240 Old Country Road Mineola, N.Y. 11501	Name: Loral Fairchild Systems	Article XI Permit Number: 006
	Address: 300 Robbins Lane, Syosset, NY 11791	Report Period: 1993

List all chemicals and/or solvents purchase during the reporting period.
Indicate for each the purpose or use, trade name or supplier, and the quantity purchased.

Name of Chemical or Solvent	How is the Chemical or Solvent Used?	Trade Name or Supplier	Quantity Purchased
Nitric Acid	Alodine Plating	Fisher Scientific	12 gallons
EC-7R	Printed Circuit Board Fabrication	Bio-Act	10 gallons
1063 Liquid Stripper	Printed Circuit Board Fabrication	Humiseal	10 gallons
Denatured Alcohol #190	Printed Circuit Board Fabrication	Captree Chemical	55 gallons
MIL-T-81772 Type II Thinner	Spray Painting	Randolph	8 gallons

EH 704 5/88

(continued on reverse)

CHEMICAL/SOLVENT WASTE REPORT

For each shipment of wastes, complete the following table with the indicated information. ATTACH COPIES OF MANIFESTS OR RECEIPTS FROM SCAVENGER FOR EACH SHIPMENT MADE.

Date of Shipment	Description of Waste	Amount Removed	Shipped by			Shipped To (Final Disposal Site for Waste)
			Transporter's Name	Transporter's Address	D.E.C. Reg. Number	
01/06/93	Askarel(PCB Transformer Oil)	9704 Kg	ENSR Operations	4160 Perimeter Drive, Columbus OH 43228	T24-762 KY	4160 Perimeter Drive, Columbus OH 43228
02/18/93	Machine Lube Oil	55 G	Chemical Pollution Control, Inc.	120 South Fourth Street, Bay Shore NY 11706	HM3506	120 South Fourth Street, Bay Shore NY 11706
	111TCA/Isopropyl Alcohol	110 G				
	1,1,1-trichloroethane	215 G				
	Solvent Wipes & Rags	63 P				
05/11/93	Alodine Solution	250 G	Chemical Pollution Control, Inc.	120 South Fourth Street, Bay Shore NY 11706	HM3506	120 South Fourth Street, Bay Shore NY 11706
	Deoxidizer Solution	165 G				
	Fluoboric Acid Solution	5 G				
05/13/93	1,1,1-trichloroethane	385 G	Chemical Pollution Control, Inc.	120 South Fourth Street, Bay Shore NY 11706	HM3506	120 South Fourth Street, Bay Shore NY 11706
	Machine Lube Oil	55 G				
	111TCA/Isopropyl Alcohol	55 G				
	Solvent Lab Waste	5 G				
	Paint Cans & Mixing Cups	127 P				

List any accidental spills that occurred during the reporting period:

Date of Spill	Amount of Spill	Describe the nature of the spill

Signature of Company Representative Robert W. Bendy, Jr. Robert W Bendy Jr.	Title Sr. Environmental/Safety Specialist	Date February 7, 1994

CHEMICAL/SOLVENT WASTE REPORT

For each shipment of wastes, complete the following table with the indicated information. ATTACH COPIES OF MANIFESTS OR RECEIPTS FROM SCAVENGER FOR EACH SHIPMENT MADE.

Date of Shipment	Description of Waste	Amount Removed	Shipped by			Shipped To (Final Disposal Site for Waste)
			Transporter's Name	Transporter's Address	D.E.C. Reg. Number	
07/14/93	Flammable Liquids (Lab Pack)	108 G	Chemical Pollution Control, Inc.	120 South Fourth Street, Bay Shore NY 11706	HM3506	120 South Fourth Street, Bay Shore NY 11706
	Corrosive Liquids (Lab Pack)	32 G				
	Alkaline Liquids (Lab Pack)	52 G				
	Aerosol Cans (Lab Pack)	7 P				
	Organic Peroxide (Lab Pack)	2 P				
	1,1,1-trichloroethane	220 G				
	Paint Thinner	55 G				
	111TCA/Isopropyl Alcohol	55 G				
	Oil/Water Mixture	55 G				
	Sulfuric Acid Solution	55 G				
	Photographic Waste	5 G				
	Solvent Wipes & Rags	68 P				
	Flammable Solids (Lab Pack)	150 P				
	Haz. Waste Solids (Lab Pack)	50 P				
	Haz. Waste Solids (Lab Pack)	59 P				

List any accidental spills that occurred during the reporting period:

Date of Spill	Amount of Spill	Describe the nature of the spill

Signature of Company Representative	Title	Date
Robert W. Bendy, Jr. [signature]	Sr. Enviromental/Safety Specialist	February 7, 1994

CHEMICAL/SOLVENT WASTE REPORT

For each shipment of wastes, complete the following table with the indicated information. ATTACH COPIES OF MANIFESTS OR RECEIPTS FROM SCAVENGER FOR EACH SHIPMENT MADE.

Date of Shipment	Description of Waste	Amount Removed	Shipped by: Transporter's Name	Shipped by: Transporter's Address	Shipped by: D.E.C. Reg. Number	Shipped To (Final Disposal Site for Waste)
08/12/93	111TCA/Isopropyl Alcohol	55 G	Chemical Pollution Control, Inc	120 South Fourth Street, Bay Shore NY 11706	HM3506	120 South Fourth Street, Bay Shore NY 11706
	Nitric Acid Lab Waste	5 G				
10/19/93	Solder Flux	55 G	Chemical Waste Management of NJ	100 Lister Avenue, Newark NJ 07105	S10331	100 Lister Avenue, Newark NJ 07105
	1,1,1-trichloroethane	165 G				
	Paint Cans & Mixing Cups	98 P				
11/24/93	Trichlorofluoroethane/Water	55 G	Chemical Waste Management of NJ	100 Lister Avenue, Newark NJ 07105	S10331	100 Lister Avenue, Newark NJ 07105
	Photographic Waste	5 G				
	Photographic Waste	5 G				
	Deoxidizer	30 G				
	Photographic Waste	15 G				
	Solder Flux	55 G				
	Solvent Lab Waste	5 G				
	1,1,1-trichloroethane	110 G				

List any accidental spills that occurred during the reporting period:

Date of Spill	Amount of Spill	Describe the nature of the spill

Signature of Company Representative	Title	Date
Robert W. Bendy, Jr. Robert W Bendy Jr	Sr. Environmental/Safety Specialist	February 7, 1994

CHEMICAL/SOLVENT WASTE REPORT

For each shipment of wastes, complete the following table with the indicated information. ATTACH COPIES OF MANIFESTS OR RECEIPTS FROM SCAVENGER FOR EACH SHIPMENT MADE.

Date of Shipment	Description of Waste	Amount Removed	Shipped by			Shipped To (Final Disposal Site for Waste)
			Transporter's Name	Transporter's Address	D.E.C. Reg. Number	
12/23/93	111TCA/Isopropyl Alcohol	5 G	Chemical Waste Management of NJ	100 Lister Avenue, Newark NY 07105	S10331	100 Lister Avenue, Newark NY 07105
	Solvent Rags & Wipes	71 P				
	Photographic Waste	55 G				
	Machine Lube Oil	55 G				

List any accidental spills that occurred during the reporting period:

Date of Spill	Amount of Spill	Describe the nature of the spill

Signature of Company Representative	Title	Date
Robert W. Bendy, Jr. Robert W. Bendy Jr.	Sr. Environmental/Safety Specialist	February 7, 1994

NASSAU COUNTY
DEPARTMENT of HEALTH

TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT

Facility Number	Type of Permit	Date Issued	Date Modified	Expiration Date
000006	[X] Operation [ ] Construction	05/01/93	05/01/93	05/01/98

Name of Permittee	Address of Permittee
LORAL FAIRCHILD SYSTEMS	300 ROBBINS LA. SYOSSET NY

GENERAL CONDITIONS

1. By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with Article XI, Nassau County Public Health Ordinance.
2. All work carried out under this permit shall conform to the approved plans and specifications. Any amendments must be approved by the Nassau County Department of Health prior to their implementation. The permittee shall notify the Health Department 48 hours in advance of the start of construction.
3. As a condition of the issuance of this permit, the applicant has accepted expressly, by the execution of the application, the full legal responsibility for all damages direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and has agreed to defend, indemnify and save harmless the County from suits, actions, damages and costs of every name and description resulting from the said project.

** NOT TRANSFERABLE **

Name of Facility: LORAL FAIRCHILD SYSTEMS

Mailing Address:
300 ROBBINS LA.
SYOSSET NY 11791-

FACILITY ADDRESS:
300 ROBBINS LA.
SYOSSET NY 11791

THIS FACILITY CONSISTS OF STORAGE AREAS AS LISTED ON PLANS AND APPLICATIONS FILED WITH THIS DEPARTMENT

Tank/Storage Area Number	Capacity	Type of Toxic or Hazardous Material Stored	REPLACE DATE
BULK 0001	150 POUNDS	MULTIPLE CHEMICALS STORED	
BULK 0001	2750 GALLONS	MULTIPLE CHEMICALS STORED	
BULK 0002	120 POUNDS	MULTIPLE CHEMICALS STORED	
BULK 0002	330 GALLONS	MULTIPLE CHEMICALS STORED	
TANK 0005	220 GALLONS	TANK, WATER RINSE	
TANK 0006	220 GALLONS	TANK, WATER RINSE	
TANK 0007	169 GALLONS	TANK, WATER RINSE	
TANK 0008	220 GALLONS	CAUSTICS	

CONTINUED

Authorizing Officer Marlena M. Hamann

GEORGE PICKETT, M.D., M.P.H.
[redacted] Commissioner of Health

EH 768 9/86

THIS PERMIT MUST BE POSTED IN A CONSPICUOUS PLACE AT THE FACILITY

NASSAU COUNTY
DEPARTMENT of HEALTH

TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT

Facility Number	Type of Permit	Date Issued	Date Modified	Expiration Date
000006	[x] Operation [ ] Construction	05/01/93	05/01/93	05/01/98

Name of Permittee:	Address of Permittee:
LORAL FAIRCHILD SYSTEMS	300 ROBBINS LA. SYOSSET NY

GENERAL CONDITIONS

1. By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with Article XI, Nassau County Public Health Ordinance.
2. All work carried out under this permit shall conform to the approved plans and specifications. Any amendments must be approved by the Nassau County Department of Health prior to their implementation. The permittee shall notify the Health Department 48 hours in advance of the start of construction.
3. As a condition of the issuance of this permit, the applicant has accepted expressly, by the execution of the application, the full legal responsibility for all damages direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and has agreed to defend, indemnify and save harmless the County from suits, actions, damages and costs of every name and description resulting from the said project.

** NOT TRANSFERABLE **

Name of Facility: LORAL FAIRCHILD SYSTEMS

Mailing Address:
300 ROBBINS LA.
SYOSSET NY 11791-

FACILITY ADDRESS:
300 ROBBINS LA.
SYOSSET NY 11791

THIS FACILITY CONSISTS OF STORAGE AREAS AS LISTED ON PLANS AND APPLICATIONS FILED WITH THIS DEPARTMENT

Tank/Storage Area Number	Capacity	Type of Toxic or Hazardous Material Stored	REPLACE DATE
TANK 0009	220 GALLONS	ALODINE	
TANK 0010	169 GALLONS	CHROMIC ACID	
TANK 0011	10 GALLONS	FLUOBORIC ACID	
TANK 0012	05 GALLONS	TANK, WATER RINSE	
TANK 0013	05 GALLONS	TANK, WATER RINSE	
TANK 0014	05 GALLONS	TANK, WATER RINSE	
TANK 0015	15000 GALLONS	OIL, FUEL #2	

Authorizing Officer Marlena M. Hamann

GEORGE PICKETT, M.D., M.P.H.
J[redacted]Commissioner of Health

EH 768 9/86

THIS PERMIT MUST BE POSTED IN A CONSPICUOUS PLACE AT THE FACILITY

FAIRCHILD WESTON
Schlumberger

FAIRCHILD WESTON SYSTEMS INC.
SYOSSET, NEW YORK

August 4, 1981

Chief of P.D.E.S.
Permit Section
N.Y.S. Dept. of
Environmental Conservation
50 Wolf Road
Albany, N.Y. 12233

ATT: Mr. George K. Hansen

Subject: Supplement to letter dated June 30, 1981 Modification of State Pollutant Discharge Elimination System Permit No. NY007 6155, Ref. No. 28-0084

Gentlemen:

The attached letter, dated June 30, 1981 stated a change in our Waste Treatment Control as well as planned future changes. Additional information and expected dates of completion are hereby provided.

The re-routing of the Process Waste Water to the County Sewer System was approved by the County of Nassau Department of Public Works, Permit No. S 36533 issued September 20, 1979

Boiler Blow Down Water will be connected to the County Sewer System by December, 1981

Cooling Tower Blow Down Water will be connected to the County Sewer System by June, 1982

If you have any questions or if additional information is required, please contact me.

Yours truly,

James F. Herrmann

James F. Herrmann
Supervisor
Failure Analysis Lab

cc:- Joseph Schechter
H. Weinstein
R. Underwood
T. Greean

RECEIVED
AUG 5 1981
NCDH
BLRM

JH/jk

FIRM NAME Fairchild Camera - Syosset

#1

MONTH	Cr^{+6}	Cr^{tot}	F	Cu	Ni	Pb	Cd	pH
	.1	1.0	3	1.0	1.0	.1	.02	6.5-8.5
6-29-77	<.01	.04	.1	.23	*	*	.008	7.5
7-27-77	*	*	*	*	*	.09	*	9.6
Drainage sump 4-1-78	<.01	.01	.27	.21	*	*	*	8.7
Recharge sump 3-5-79	*	<.001	.83	*	*	*	*	7.1
treatment room tank 10-18-79	*	.02	1.95	3.45	<.05	.40	.01	10.3

FIRM NAME : Fairchild Camera - Syosset

#2

MONTH	20 Al	6 Fe	10 NH_3	10 NO_2	10 NO_3	ppb Benzene	ppb Toulene	ppb Xylene
6-29-77	*	*	*	*	*	*	*	*
7-27-77	*	*	*	*	*	*	*	*
5-1-78	*	*	*	*	*	*	*	*
3-5-79	*	*	*	*	*	*	*	*
10-18-79	2.6	6.5	1.6	0.3	4.57	<5	<5	<5

at Mr. Dressman [illegible] 7 [illegible]

12/63)

NEW YORK STATE DEPARTMENT OF HEALTH

INDUSTRIAL WATER USE AND WASTE WATER DISPOSAL PRACTICES SURVEY

of Establishment **Fairchild Camera & Instrument Corp.**
Space & Defense Systems Division

Mailing Address **300 Robbins Lane, Syosset, New York**

Plant Address **300 Robbins Lane, Syosset, New York**

4. Location of Plant **Syosset** ~~City, town~~ or village (circle) **Nassau** County

5. Number of employees **1000** Average **1340** Maximum

6. Months Plant Operated (circle) J F M A M J J A S O N D

7. Number of days plant operated per week **5** Normal **6** Peak

8. Number of hours plant operated per day **16** Normal **24** Peak

9. Manufacturing Process or service **fabrication (including electroplating) and assembly of camera and electronic instrumentation, photo processing, research and development.**

10.

Raw Materials	Quantities	Primary Products	Quantities
1.			
2.			
3.			

11. Water Sources

	Gallons per day average	Gallons per day maximum
a. Public Water Supply (Municipal or Private)		
Name of Water Supply Co. **Jericho Water Dist.**	**0 0**	**0**
b. Plant's surface water intake (rivers, lakes, etc.)	**N/A**	
Name of river, lake, etc. **N/A**		
Location of intake		
c. Plant's ground water source (wells, springs, etc.)	**85,343**	**119,773**
d. Other sources of water (quarries, mines, etc.)		
Name and location **none**		

12. Source of Aux. Fire Protection **Jericho Water District**

13. Briefly describe treatment of incoming water by your company and indicate whether or not water is treated for reuse **No treatment required for incoming water. Only boiler water is treated for reuse or recirculation.**

(over please)

Incoming water analysis performed by plant **Yes** Frequency **Quarterly**

15. Water Use and Recirculation

Purpose of Water Intake	Water Use Gallons per day		Water Recirculation Gallons per day	
	Average	Maximum	Average	Maximum
Potable	**42,600**	**60,000**	**None**	**None**
Process	**42,743**	**59,733**		
Cooling				
Other				

	Type of Waste	Process A	Process B	Process C	Cooling Water	Sanitary Sewerage	Total Plant Waste
17.	Origin of Wastes	**Plating**			**None**	Sanitary	Over All Plant
18.	Description of Waste				Heated	Sanitary	
19.	Average Volume of Waste Water, gallons/day	**43,000**				**43,000**	**86,000**
20.	Waste treated yes or no(If yes, answer question #22	**Yes**					
21.	Where waste water is discharged:						
	To Sewers Name of Municipality	**None**			**None**	**None**	
	To Local Watercourse Name of River/Lake	**None**					
	To Land incl. ground water (Describe)	**43,000 Recharge Basin**				**43,000 Sanitary Pools**	
	Other (Describe)						

16. (Type of Waste — see table above)

22. Briefly describe waste water treatment by types of waste (Question No. 20)
Use additional sheets for supplementary information and sketches
Chlorination of Cyanides, Permutit of Chromates, Adjustment of Ph

23. If discharge is to watercourse, give location of discharge **None**

24. Waste Water analysis performed by plant ________ Frequency ________

SEP 3 1954

FCH10-B

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

MATERIALS LABORATORY REPORT

COPY*

TO

CC Emmett Archbold

DATE January 6, 1955

Lab. No.	Part No.	RR No.	Charge No.										
	SAMPLE			CHEMICAL ANALYSIS							METALLOGRAPHIC EXAMINATION		
C143	Analysis of Discharge Basin			EXPRESSED IN PPM									
	Level of Water from top of												
	Culvert 10"			pH	Cr	Cn	Others						
			Tap H_2O	6.2	none	none	none						
			North	9.3	0.10	none	none						
			East	9.4	0.10	none	none						
			South	9.4	0.10	none	none						
			West	9.2	0.10	none	none						

Remarks: Cyanide shows no traces in the basin water. Chrome concentration still 2 times greater than maximum 0.05. No trace of other metals.

Report by:

A. P. Ingraham.

Approved by:

Metallurgist

Date 2/15/55

INDUSTRIAL CHEMICAL SURVEY

240 Old Country Road
Mineola, New York 11

PART I

Chemco Photoproducts
46 Charles Glen Cove phone # 676-4000

PLANT NAME: Chemco Powers Chemco

SIC CODE (If known)

OFFICE USE

MAILING ADDRESS: 7 Aerial Way

CITY: Syosset

STATE: N.Y.

ZIP CODE

PLANT NAME (If different)

CONTACT NAME: Marty Bilicki (Foreman)

TELEPHONE Area 433-4000 676-4000

PLANT ADDRESS (If different) Street

CITY

STATE

ZIP CODE

PRINCIPAL BUSINESS OF PLANT: Mfg Photo

Number of Employees at this Facility 65

(If parent company), give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.)

PART II
Discharge Information

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☑ No
   Name of System ______
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number ☐ Yes ☑ No
3. Do you discharge liquid wastes in any other manner? ☐ Yes ☑ No
   Explain ______

If any of the above are "Yes":
a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☐ Yes ☑ No
b. Do you discharge non-contact cooling water? ☐ Yes ☑ No
c. Do you discharge collected storm drainage only? ☐ Yes ☑ No
d. Do you discharge sanitary wastes only? ☑ Yes ☐ No

1. Does your facility have sources of possible emissions to the atmosphere? Paint Spray Booth ☑ Yes ☐ No
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable)

LIQUID WASTES

1. List Name and Address of Firm (including yourself) removing wastes other than office and cafeteria refuse.

Name			
Address	City	State	Zip Code
Name			
Address	City	State	Zip Code

2. List Location(s) of Landfill(s) owned and used by your facility.

	Location	Active	Inactive
1		☐	☐
2		☐	☐

1. Does this facility:
   Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☑ No
   Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☑ No
   Formulate Pesticides? ☐ Yes ☑ No
   Repackage Pesticides? ☐ Yes ☑ No
2. EPA Establishment Number ______ - ___ - ___

SUBSTANCES OF CONCERN

(include gases and waste oils)

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do no include chemicals used only in analytical laboratory work.

...me Of Substance/Trade Name Supplier and Address	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
Isopar Exxon			2 (55 gal)			Processing Camera
Fixer & Developer Reprocessed		call office				Waste is Take Away and Reprocessed
Toluel Volplex, Rochester		110	55			
Solvent 10-20 Volplex, Rochester		110	55			

Final Discharge Point
- ☐ Sewers
- ☐ Cesspools
- ☐ Sumps or basins
- ☐ Drums
- ☐ Landfills
- ☐ Other

Recommended Action
- ☐ Immediate abatement
- ☐ Sample
- ☑ SPDES Appication
- ☐ Reinspection
- ☐ Referred to ____________
- ☑ No Action

STATIONARY COMBUSTION AND INCINERATION

A. Heating System	☐ None	☑ Boiler	☐ Space Heaters
B. Fuel	☐ Electric	☑ ~~Gas~~	☐ Oil
C. Incinerator	☐ Yes	☑ No	

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements ... punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

... Owner, Partner, or Officer) X [signature]

DATE 2/15/77

(Printed or Typed) Marty Bilicki

TITLE Foreman

...pectors Name [signature]

INDUSTRIAL CHEMICAL SURVEY
REAU OF WATER POLLUTION CONTROL

Nassau County Department of Health
40 Old Country Road, Mineola, N.Y. 11501 Tel. 535-2404

4SR

Part I

Company Name: PMI MOTORS Co		SIC (if known) Code 3621	
Company Mailing Address: 5 Aerial Way			Zip
Plant Name (if different)	Contact Name		Tel. 938-8000
Plant Address	Village	Water Distr.	Code / Zip
Principal Business of Plant: Mfg. Electric Motors		No. Employees at this Facility: 150	

Part II

COMPLETE LIST OF CHEMICALS USED (See attached)

PART III - DISCHARGE INFORMATION

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☑ No
   If yes, name of system: Cesspool, Septic Tank
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? ☐ Yes ☑ No
   If yes, enter Permit No. ☐☐☐☐☐☐☐
3. Do you discharge liquid industrial wastes in any other manner? ☐ Yes ☑ No
   If yes, explain:
4. If any of the above are yes:
   a. Do you discharge process or chemical wastes, i.e., water used in manufacturing, including direct contact cooling water and scrubber water? ☐ Yes ☐ No
   b. Do you discharge non-contact cooling water? ☐ Yes ☐ No
   c. Do you discharge sanitary wastes? ☐ Yes ☐ No

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☐ Yes ☑ No
2. Enter location and facility code as shown on your Air Pollution Control Application for Permits & Certification (if applicable) ☐☐☐☐☐☐☐☐☐☐
3. Heating System: ☐ None ☑ Boiler ☑ Space Heater | Type of Fuel: ☐ Electric ☑ Gas ☐ Oil | Incinerator: ☐ Yes ☑ No

SOLID & CONCENTRATED LIQUID WASTES

1. List name and address of firm (incl. yourself) removing wastes other than office and cafeteria refuse (industrial scavenger)

Name: JAMAICA ASH	Name
Address	Address

2. List location(s) of landfills owned and used by your Facility

		Active	Inactive
a.			
b.			

PEST

Does this facility manufacture, produce, formulate or repackage pesticides? ☐ Yes ☑ No

Signature (owner, partner, or officer): R F Wilson | Date: 11/10/77

Name (printed or typed): Richard F Wilson | Title: Facilities Mgr

Inspector's Name: RZ DB | Date of Inspection: 11/10/77

INDUSTRIAL C[illegible]MICAL SURVEY-BUREAU OF WATER POLLUTION
Nassau County [illegible]partment of Health

Name of Company: PMI Motors | SIC Code: 3621 | Water Dist: Syosset

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition of Chemic[al]
Blaco (1,1,1 Trichloroethane)		250	✓		clean armatures, contacts, parts	sent to Glen Cove + reclaimed stored in drums
Methylene Chloride		1320	✓		vapor degreaser	"
55 4 220 13						
→ waste drums taken to Photocircuits in Glen Cove for disposal, methylene chloride 1,1,1 Trichloroethane						

RECOMMENDED ACTION

FOR OFFICE USE ONLY

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☒ SPDES Application S+R
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ [illegible] Action
9 ☐ Other (specify)

EH 651B 3[illegible]

11 YES

INDUSTRIAL CHEMICAL SURVEY

BUREAU OF WATER POLLUTION CONTROL

Nassau County Department of Health
240 Old Country Road, Mineola, N.Y. 11501 Tel. 535-2404

Part I

Company Name: CENTROID INC.		SIC (if known) Code:	
Company Mailing Address: 3 AERIEL WAY SYOSSET			Zip: 11791
Plant Name (if different):	Contact Name: BURT DWORKIN		Tel.: 822-4770
Plant Address:	Village:	Water Distr.:	Code: Zip:
Principal Business of Plant: MFG. ELECTRONICS		No. Employees at this Facility: 55	

Part II

COMPLETE LIST OF CHEMICALS USED (See attached)

PART III - DISCHARGE INFORMATION

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☑ No
   If yes, name of system:
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? ☐ Yes ☑ No
   If yes, enter Permit No.
3. Do you discharge liquid industrial wastes in any other manner? ☐ Yes ☑ No
   If yes, explain:
4. If any of the above are yes:
   a. Do you discharge process or chemical wastes, i.e., water used in manufacturing, including direct contact cooling water and scrubber water? ☐ Yes ☑ No
   b. Do you discharge non-contact cooling water? ☐ Yes ☑ No
   c. Do you discharge sanitary wastes? ☑ Yes ☐ No

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☑ Yes ☐ No
2. Enter location and facility code as shown on your Air Pollution Control Application for Permits & Certification (if applicable)
3. Heating System: ☐ None ☐ Boiler ☐ Space Heater HOT AIR | Type of Fuel: ☐ Electric ☑ Gas ☐ Oil | Incinerator: ☐ Yes ☑ No

SOLID & CONCENTRATED LIQUID WASTES

1. List name and address of firm (incl. yourself) removing wastes other than office and cafeteria refuse (industrial scavenger)

Name	Name
CHEM. POLLUTION CONTROL INC.	
Address	**Address**
BAYSHORE	

2. List location(s) of landfills owned and used by your Facility

		Active	Inactive
a.	NONE		
b.			

PEST

Does this facility manufacture, produce, formulate or repackage pesticides? ☐ Yes ☑ No

Signature (owner, partner, or officer)	[signature]	Date	1/9/84
Name (printed or typed)	BURT DWORKIN	Title	
Inspector's Name	Michael Schuetta	Date of Inspection	1-9-84

EH 651 4/77

INDUSTRIAL CHEMICAL SURVEY-BUREAU OF WATER POLLUTION
Nassau County Department of Health

Name of Company: CENTROID INC.

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg. Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition of Chemical
METHYLENE CHLORIDE		175	✓		CLEAN FLUX	HELD FOR PICK-UP
					FROM	
1,1,1 TRICHLOROETHANE		80	/		ELECTRONICS	" " " "
					CLEAN EPOXY	
					ENCAPSULATING	
					MACHINE	
EPOXY						
INSULCURE		1000			ENCAPSULATE	PART OF FINAL
INSULCAST		2000			ELECTRONICS	PRODUCT
PERMAGILE - ~~SALMON~~ LTD.		TOTAL				
101 COMMERCIAL ST.						
PLAINVIEW N.Y. 11803						

FOR OFFICE USE ONLY

RECOMMENDED ACTION

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☒ SPDES Application Part IX
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ No Action
9 ☐ Other (specify)

EH 651B 3/77

APPLICATION FOR APPROVAL TO OPERATE A SOLID WASTE MANAGEMENT FACILITY

14

Nassau County Department of Health

Instructions

Complete all Sections

Mail this Application Form, along with your Plot Sketch and Material Flow Sketch, within 2 weeks to:

Bureau of Land Resources Management
Nassau County Department of Health
240 Old Country Road
Mineola, N.Y. 11501

For Health Department Use Only

Facility Number:

Date Received: 3 | 11 | 85

Department Action

☒ Approved ☐ Interim ☐ Not Required By:

Permit Number

Start Date:

Exp. Date:

1. Facility Name	2. Address	3. Tel. #
CENTROID, INC.	3 AERIAL WAY, SYOSSET, NEW YORK 11791	516-822-4770
4. Owner's Name	**5. Address**	**6. Tel. #**
GERALD STARR	120 BACON ROAD, OLD WESTBURY, NY 11568	516-621-2190
7. On-Site Supervisor	**8. Address**	**9. Tel. #**
BURT DWORKIN	843 OAKLAND CT., NO. BELLMORE NY 11710	516-TA 6-3727
10. Engineer (if applicable)	**11. Address**	**12. Tel. #**

13. Has this department ever approved plans and specifications and or engineering reports for this facility? ☒ Yes Date 3/27/84 ☐ No

14. List Wastes Generated (use additional sheet if needed).

Name of Constituents	Check One		# of Gals. Generated Per Month		Maximum # of Gals. Accumulated Before Disposal
	Hazardous	Non-Hazardous	Maximum	Average	
TRICHOLORETHANE SOLUTION (SPENT)	X		10	8	55
METHELENE CHLORIDE SOLUTION (SPENT)	X		05	4	55

15. Names of Waste Haulers CHEMICAL POLLUTION CONTROL, INC.

16. Briefly describe facility operation: (use additional sheet if needed)

"No Change"

I hereby affirm under penalty of perjury, that the information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief.

Signature	Title	Date
[signature]	GENERAL MANAGER	3/7/85

JAN 21 1987

RECEIVED

JAN 21 1987

NCDH—BLRM

NASSAU COUNTY DEPARTMENT OF HEALTH NASSAU COUNTY PUBLIC HEALTH ORDINANCE - ARTICLE XI
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 1 - GENERAL INFORMATION
SEE INSTRUCTION SHEET

For Office Use Only
Facility I.D. 198
☐ Municipal
☒ Non-Municipal

Check all that apply to your facility: ☐ Tank Storage ☒ Container Storage ☐ Bulk Storage ☐ Storage of Road De-icing Materials

Reason for submitting application: ☒ New ☐ Renewal ☐ Change ☐ Construction

Facility Name	Street Address	Village	State	Zip	Phone
CENTROID, INC.	3 AERIAL WAY	SYOSSET	NEW YORK	11791	516-822-4770

Facility Mailing Address (If different from above)	Facility Contact Person (Name & Title)	Phone
SAME	BURT DWORKIN, GENERAL MANAGER	516-822-4770

Facility Owner	Street Address	Village	State	Zip	Phone
GERALD STARR	120 BACON ROAD	OLD WESTBURY	NEW YORK	11568	516-621-2190
Property Owner (If not Facility Owner)	**Street Address**	**Village**	**State**	**Zip**	**Phone**
SAME					
Tank Owner (If not Facility Owner)	**Street Address**	**Village**	**State**	**Zip**	**Phone**
NO TANKS					

Name that should appear on Permit (Permittee)
(If different from Facility Owner) CENTROID, INC.

Permittee's Street Address	Village	State	Zip	Phone
3 AERIAL WAY	SYOSSET	NEW YORK	11791	516-822-4770

Permittee's Relationship to Facility Owner: ☒ Same ☐ Operator of Facility ☐ Other (Specify):

Principal Property Tax Code:	School District No.	Section	Block	Lot
	014	15	157	0021

Forms Attached (Check all that apply) ☐ Form 2 - Tank Registration ☒ Form 3 - Bulk & Container Storage Registration ☐ Form 4 - Storage of Road De-icing Materials

I hereby affirm under penalty of perjury that the information provided on this form and on any attached forms, statements and exhibits is true to the best of my knowledge and belief.

Print Name	Signature	Title	Date
BURT DWORKIN	[signature]	GENERAL MANAGER	01/16/87

EH 857 /86

☐ D.P.

... DEPARTMENT OF HEALTH
...ON FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
... - BULK AND CONTAINER STORAGE REGISTRATION
...d INSTRUCTION SHEETS

RECEIVED
For Office Use Only

Date Application Received JAN 21 1987	Facility I... 118
Reviewed By NCDH — BLRM HS	Date Review... 1/28
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No. of Month...

Facility Name: CENTROID, INC.

Facility Address: 3 AERIAL WAY, SYOSSET, NEW YORK 11791

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area — Area No. S1

Location: ☒ Indoors ☐ Outdoors — Bulk Storage Max. Quantity Stored: NONE — Container Storage Max. No. 8 Max. Vol. 300 GAL AP...

Secondary Containment: ☐ Impervious Berm/Dike ☒ Impervious Floor/Pad ☐ Roof ☒ Walls ☐ Floor Drain & Storage Tank ☐ None ☐ Other (Specify).

Construction Material of Dike & Pad (Check all that Apply) ☒ Concrete ☐ Steel ☐ Other (Specify):

Security ☐ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Units	Storage Method: Average Number	Typ...
1	4062	FREON TMS (TRICHLORO-TRIFLUORETHANE)	1	50	GAL	1	DRU...
1	9122	TRICHLOROETHANE 111	1	50	GAL	1	DRU...
1	5781	METHYL ETHYL KETONE F	1	50	GAL	1	DRU...
1	5772	METHELENE CHLORIDE	1	50	GAL	1	DRU...
2	4062	WASTE FREON (SPENT SOLVENT)	1	50	GAL	1	DRU...
2	5781	WASTE METHYL ETHYL KETONE F	1	05	GAL	1	DRU...
2	5772	WASTE METHELENE CHLORIDE SOLUTION	1	50	GAL	1	DRU...
2	9122	WASTE TRICHLOROETHANE	1	50	GAL	1	DRU...

EH 859 /86 Date Submitted 6/87 Page 1 of 2 ☐ D.P.

DEPARTMENT OF HEALTH
FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
BULK AND CONTAINER STORAGE REGISTRATION
INSTRUCTION SHEETS

For Office Use Only	
Date Application Received RECEIVED JAN 2 1 1987	Facility I... 198
Reviewed By HS	Date Revie... 1/28
Action: NCDH - BLRM ☐ Not Req'd. ☐ Approved ☐ Disapproved	No. of Mont...

Facility Name CENTROID, INC. (REAR SHED)

Facility Address 3 AERIAL WAY, SYOSSET, NEW YORK 11791

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area Area No. S2

Location: ☒ Indoors ☐ Outdoors | Bulk Storage Max.Quantity Stored: NONE | Container Storage Max.No. 140 Max.Vol. 90 GAL

Secondary Containment: ☐ Impervious Berm/Dike ☒ Impervious Floor/Pad ☐ Roof ☒ Walls ☐ Floor Drain & Storage Tank ☐ None ☐ Other (Specify)

Construction Material of Dike & Pad (Check all that Apply) ☒ Concrete ☐ Steel ☐ Other (Specify): | Security ☒ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored		Storage Method	
				Average Quantity	Units	Average Number	Typ...
		VARIOUS FLAMMABLE MATERIALS PER THE					
		LISTING ATTACHED ARE STORED IN THE SHED,					
		REAR OF MAIN BUILDING, IN SEALED					
		CONTAINERS.					

EH 859 ...86

Date Submitted 01/16/87

☐ D.P.

INDUSTRIAL CHEMICAL SURVEY
BUREAU OF WATER POLLUTION CONTROL

Nassau County Department of Health
240 Old Country Road, Mineola, N.Y. 11501 Tel. 535-2404

4

Part I

Company Name: GREAT EASTERN PRINTING CO INC.		SIC (if known) Code	
Company Mailing Address: 7 AERIAL WAY [redacted] SYOSSET			Zip 11791
Plant Name (if different): SAME	Contact Name: MR DENNIS DRISCOLL		Tel. 931-3900
Plant Address	Village	Water Distr.	Code / Zip
Principal Business of Plant: PHOTO DEVELOPING		No. Employees at this Facility: 80	

Part II

COMPLETE LIST OF CHEMICALS USED (See attached)

PART III - DISCHARGE INFORMATION

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☑ No
   If yes, name of system: 6/81 Has hooked to sewer
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? ☐ Yes ☑ No
   If yes, enter Permit No. ☐☐☐☐☐☐☐
3. Do you discharge liquid industrial wastes in any other manner? ☐ Yes ☑ No
   If yes, explain:
4. If any of the above are yes:
   a. Do you discharge process or chemical wastes, i.e., water used in manufacturing, including direct contact cooling water and scrubber water? ☑ Yes ☐ No
   b. Do you discharge non-contact cooling water? ☐ Yes ☑ No
   c. Do you discharge sanitary wastes? ☑ Yes ☐ No

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☐ Yes ☑ No
2. Enter location and facility code as shown on your Air Pollution Control Application for Permits & Certification (if applicable) ☐☐☐☐☐☐☐☐☐☐
3. Heating System: Hot WATER ☐ None ☐ Boiler ☐ Space Heater | Type of Fuel: ☐ Electric ☑ Gas ☐ Oil | Incinerator: ☐ Yes ☑ No

SOLID & CONCENTRATED LIQUID WASTES

1. List name and address of firm (incl. yourself) removing wastes other than office and cafeteria refuse (industrial scavenger)

Name: NONE	Name
Address	Address

2. List location(s) of landfills owned and used by your Facility

		Active	Inactive
a.	NONE		
b.			

PEST

Does this facility manufacture, produce, formulate or repackage pesticides? ☐ Yes ☑ No

Signature (owner, partner, or officer) X [signature]	Date
Name (printed or typed): MR DENNIS DRISCOLL	Title: PRESIDENT
Inspector's Name: G. Fitzgerald	Date of Inspection: 12/28/79

EH 551 4/77

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg. Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition
Hunt Star Fix		400	✓		Negative Stop	Directly to cess
Agfa Gaevart Lytex Developer		400	✓		Developing	After silver recov
						Directly to cess
						After use
Fountain Solution Pro 3		400	✓		Etching	Rags to rag service
Gum Arabic		3	✓		Preserve plates	" " " "
Rogersol JK-162 (Blanket Hardner)		½	✓		Blanket coating	Remains on blanket
Copper Plating Solution		3	✓		Coat plate	Rags to rag service
Enco FPC Finisher/Preserver Clnr		7	✓		Plate clnr	Rags to rag service
Roller Wash / Printers Service 26 Blanchard St N.J.		200	✓		Clng rollers	Rags to rag service
Varn Pronto Roller Wash 175 Route 208 Oakland N.J.		800	✓		" "	" " " "
Anchor Solvent Hicksville N.Y.		200	✓		" "	" " " "
Degreaser Chem Glide Inc Brooklyn N.Y.		50	✓		" "	" " " "

FOR OFFICE USE ONLY

RECOMMENDED ACTION

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☒ SPDES Application
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ No Action
9 ☐ Other (specify)

EH 651B 3/77

SUBSTANCES OF CONCERN

(include gases and waste oils)

... all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not ... chemicals used only in analytical laboratory work.

... of Substance/Trade Name Supplier and Address	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
Photo Chemical Developing						Deposited in Drain
NMD Developer Amer Hoechst, Mary hill N.J.	60120350	12 (25 gal)	2 6 gal ✓			"
Preco Web Wash Printers Service Newark NJ		12 (55 gal)	55 gal			Applied Towel
Paste Blanket Roller Varn Products Co Flushing N.Y		6-12 (55) gal 20% Flurotrichloroethane 80% hydrocarbon?	55 gal			Applied Towel 550 ... 330 – 660 g/yr
Poly Chemical co Spring Vally N.Y			55 gal ✓			300 * .20 60 gal code 05 → 240 (F 300 (... 540 code ...

Final Discharge Point
- ☐ Sewers
- ☐ Cesspools
- ☐ Sumps or basins
- ☐ Drums
- ☐ Landfills
- ☐ Other

Recommended Action
- ☐ Immediate abatement
- ☒ Sample
- ☒ SPDES Appication
- ☐ Reinspection
- ☐ Referred to ____________
- ☐ No Action

STATIONARY COMBUSTION AND INCINERATION

A. Heating System	☐ None	☐ Boiler	☑ Space Heaters
B. Fuel	☐ Electric	☒ Gas	☐ Oil
C. Incinerator	☐ Yes	☒ No	

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Owner, Partner, ... [signature]

DATE 2/15/77

... (Printed or Typed): DENNIS J. DRISCOLL

TITLE Exec. V.P.

...ectors Name [signature]

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 3 - BULK AND CONTAINER STORAGE REGISTRATION
SEE INSTRUCTION SHEETS

For Office Use Only	
Date Application Received ~~11/20/93~~ 5/1/95	Facility I.D. 1412
Reviewed By MS	Date Reviewed
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No. of Months 60

Facility Name
Great Eastern Printing Co., Inc.

Facility Address
7 Aerial Way, Syosset NY 11791

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area Area No. 2

Location: ☒ Indoors ☐ Outdoors | Bulk Storage Max.Quantity Stored: | Container Storage Max.No. ~~127~~ 121 Max.Vol. ~~1578.76~~ 1293.76 gal.

Secondary Containment: ☐ Impervious Berm/Dike ☐ Impervious Floor/Pad ☐ Roof ☐ Walls ☐ Floor Drain & Storage Tank ☒ None ☐ Other (Specify):

Construction Material of Dike & Pad (Check all that Apply) ☐ Concrete ☐ Steel ☐ Other (Specify): | Security ☒ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Amount Stored: Units	Storage Method: Average Number	Storage Method: Type
1	5772	Enco RC 791 Finisher	1	5	1	1	2
1	15693	Copper Plate ing Solution. methylene chloride	1	2½	1	10	2
1	27242	FDC Finisher	1	1¼	1	5	2
1	27252	Smooth Litho	1	⅓	1	2	2
1	27262	Roger Sol JK163-162	1	5	1	5	2
1	10271 ~~[illegible]~~	Roller Wash #1	1	5	1	5	2
1	27282	Meter Roller Clean	1	2	1	2	2
1	27292	MRC Roller Cleaner	1	5	1	5	2
1	27302	Emerald JR2637	1	11	1	11	2
1	"F"	~~Press Wash M30~~ ?	~~1~~	~~30~~	~~1~~	~~1~~	~~1~~
1	"F"	~~Web Wash~~ ? R-228 ~~[illegible]~~ [illegible]	~~1~~	~~55~~	~~1~~	~~1~~	~~1~~
1		~~U W M Wash~~ Naptha	~~1~~	~~55~~	~~1~~	~~1~~	~~1~~

EH 859 4/86
DH-2791 11

Date Submitted 10/08/92

Page 1 of ~~4~~ 3

☐ D.P.

F= Flammable

Nassau County Department of Health
NASSAU COUNTY PUBLIC HEALTH ORDINANCE - ARTICLE XI
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS
STORAGE FACILITY PERMIT

FORM I-GENERAL INFORMATION (SEE INSTRUCTION SHEET)

If applicable, check the following:
☐ Municipality
☐ Public School
☐ Other tax-supported institutions

If tax exempt facility, enter N.Y. State Exempt Organization Certificate No. and enclose a copy:

For Office Use Only
Facility I.D. 1412
Date Rec'd. 1/20/93
Fee Exempt Fac. ☐ Yes ☒ No
Permit Months:

Check all that apply to your facility: ☐ Tank Storage ☒ Container Storage ☐ Bulk Storage ☐ Storage of Road De-icing Materials

Reason for submitting application: ☒ New ☐ Renewal ☐ Change ☐ Construction

Facility Name	Street Address	Post Office	State	Zip	Phone
Great Eastern Printing Co., Inc.	7 Aerial Way	Syosset	NY	11791	WE1-3900

Facility Mailing Address (If different from above)	Facility Contact Person (Name & Title)	Phone
	Dennis Driscoll, Pres	WE1-3900

	Street Address	Post Office	State	Zip	Phone
Facility Owner: Dennis Driscoll					
Property Owner (If not Facility Owner)					
Tank Owner (If not Facility Owner)					

Name that should appear on Permit (Permittee)
(If different from Facility Owner)

Permittee's Street Address	Post Office	State	Zip	Phone

Permittee's Relationship to Facility Owner: ☒ Same ☐ Operator of Facility ☐ Other (Specify):

Principal Property Tax Code:	School District No.	Section	Block	Lot
71024 282489	14	15	157	0032

Forms Attached (Check all that apply) ☐ Form 2 - Tank Registration ☐ Form 3 - Bulk & Container Storage Registration ☐ Form 4 - Storage of Road De-icing Materials

I hereby affirm under penalty of perjury that the information provided on this form and on any attached forms, statements and exhibits is true and correct to the best of my knowledge and belief.

Print Name	Signature	Title	Date
DENNIS J. DRISColl	[signature]	President	10/21/92

EH 857 7
DH 2512 11/86 Rev. 12/87

☐ D.P.

COUNTY DEPARTMENT OF HEALTH
TION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
- BULK AND CONTAINER STORAGE REGISTRATION
TRUCTION SHEETS

For Office Use Only	
Date Application Received 1/12/93 ~~6/4/93~~	Facility I.D. 1412
Reviewed By MS	Date Reviewed
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No.of Months

Name
at Eastern Printing Co., Inc.
Address
erial Way Syossett, NY 11791

☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area Area No. 2

n: ☒ Indoors ☐ Outdoors | Bulk Storage Max.Quantity Stored: | Container Storage Max.No. ~~127~~ 121 Max.Vol. ~~1578.76 gal.~~ 1293.76

ry ment: ☐ Impervious Berm/Dike ☐ Impervious Floor/Pad ☐ Roof ☐ Walls ☐ Floor Drain & Storage Tank ☒ None ☐ Other (Specify):

ction Material & Pad (Check all that Apply) ☐ Concrete ☐ Steel ☐ Other (Specify): Security ☒ Yes ☐ No

NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Units	Storage Method: Average Number	Type
4561	Printer's Ink	4	1200	1	2000 ~~50~~	2
24581	Kodak Fixer A Ammonium thiosulfate. acetic acid. thiocyanate.	1	10	1	2	2
24571	Devoloper	1	5	1	2	2
783	$Al_2(so_4)_3$	1	6	1	2	2
8493	H_2SO_4	1	1½	1	2	
9291	Tri Ethylene Glycol (alcha)	1	10	1	2	2
7051	Alpha Replenisher B	1	2	1	2	2
10163	Hunt Potassium Thocyanate	1	15	1	3	2
11831	Hunt Developer	1	5	1	1	2
11831	143 Developer	1	15	1	3	2
10651	Filmclean Pit-50 sodium citrate. 2-phenoxy ethanol.	1	2	1	2	2
27312 Surfactant. sol.	FN 220 Developer	1	15	1	3	2

☑ D.P.

9 4/86
11/86

Date Submitted 10/08/92 Page 2 of ~~4~~ 3

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 3 - BULK AND CONTAINER STORAGE REGISTRATION
SEE INSTRUCTION SHEETS

For Office Use Only

Date Application Received 1/20/93 ~~6/1/95~~

Facility I.D. 1412

Reviewed By MS

Date Reviewed

Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved

No. of Months

Facility Name GREAT EASTERN PRINTING CO INC

Facility Address 7 AERIAL WAY, Syosset NY 11791

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area

Area No. 1

Location: ☒ Indoors ☐ Outdoors

Bulk Storage Max. Quantity Stored:

Container Storage Max. No. 6 Max. Vol. 285 Gal

Secondary Containment: ☐ Impervious Berm/Dike ☒ Impervious Floor/Pad ☒ Roof ☒ Walls ☐ Floor Drain & Storage Tank ☐ None ☐ Other (Specify):

Construction Material of Dike & Pad (Check all that Apply) ☐ Concrete ☐ Steel ☐ Other (Specify):

Security ☐ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Amount Stored: Units	Storage Method: Average Number	Storage Method: Type
1	7331 "F"	Press Wash	1	30	1	1	1
1	27212 "F"	Web WASH (Anchor/Lithchemco)	1	55	1	1	1
1	27222	UWM WASH	1	55	1	1	1
1	4771 "F"	Isopropyl Alcohol	1	55	1	1	1
1	27232	ARS-F 2628 Filler	1	60	1	2	1
1	6381	Machine Oil	1	30	1	1	1

EH 859 4/86
DH-2[illegible] 11/86

Date Submitted

"F" = Flammable

Page 3 of 3

☐ D.P.

Nassau County
Department of Health
240 Old Country Road
Mineola, New York 115

INDUSTRIAL CHEMICAL SURVEY

PART I

MPANY NAME Bertan Associates Inc.		SIC CODE (If known) 3671	OFFICE USE ONL
MPANY MAILING ADDRESS 3 Aerial Way	CITY Syosset	STATE	ZIP CODE
NT NAME (If different)	CONTACT NAME Walter Check		TELEPHONE Area 433 3110
NT ADDRESS (If different) Street	CITY	STATE	ZIP CODE

NCIPAL BUSINESS OF PLANT
Electronics

Number of Employees at this Facility
50

E: (If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.)

PART II
Discharge Information

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☑ No
   Name of System ______________________
2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? Permit Number ☐☐☐☐☐☐☐ ☐ Yes ☑ No
3. Do you discharge liquid wastes in any other manner? ☐ Yes ☑ No
   Explain ______________________

ny of the above are "Yes":
   a. Do you discharge process or chemical wastes – (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☐ Yes ☑ No
   b. Do you discharge non-contact cooling water? ☐ Yes ☑ No
   c. Do you discharge collected storm drainage only? ☐ Yes ☑ No
   d. Do you discharge sanitary wastes only? ☑ Yes ☐ No

1. Does your facility have sources of possible emissions to the atmosphere? Cleaning Agents Under Hood ☑ Yes ☐ No
2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) ☐☐☐☐☐☐☐☐☐☐

1. List Name and Address of Firm (including yourself) removing wastes other than office and cafeteria refuse.

Name			
Address	City	State	Zip Code
Name			
Address	City	State	Zip Code

2. List Location(s) of Landfill(s) owned and used by your facility.

		Active	Inactive
1		☐	☐
2		☐	☐

1. es this facility:
   Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes ☑ No
   Produce Pesticides or Pesticide Product Ingredients? ☐ Yes ☑ No
   Formulate Pesticides? ☐ Yes ☑ No
   Repackage Pesticides? ☐ Yes ☑ No
2. EPA Establishment Number ☐☐☐☐☐–☐☐☐–☐☐☐

SUBSTANCES OF CONCERN

(include gases and waste oils)

...mplete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do no... ...lude chemicals used only in analytical laboratory work.

...me Of Substance/Trade Name Supplier and Address	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	LB.	PURPOSE OF USE (State whether produced, reacted, blended, packaged, distributed, no longer used, etc.)
M-E K		12 gal ✓	5 gal			Waste Deposited in a Barrell
Trichloroethylene		30 gal ✓	30 gal ✓			

Final Discharge Point
- ☐ Sewers
- ☐ Cesspools
- ☐ Sumps or basins
- ☐ Drums
- ☐ Landfills
- ☐ Other

Recommended Action
- ☐ Immediate abatement
- ☒ Sample
- ☒ SPDES Appication
- ☐ Reinspection
- ☐ Referred to ____________
- ☐ No Action

STATIONARY COMBUSTION AND INCINERATION

A. Heating System	☐ None	☐ Boiler	☒ Space Heaters
B. Fuel	☐ Electric	☒ Gas	☐ Oil
C. Incinerator	☐ Yes	☒ No	

...by affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements ... punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

...ATS... (Owner, Partner, or Officer): X Walter Check

DATE: 2/15/77

(Printed or Typed): Walter Check

TITLE:

...pectors Name

FRANCIS T. PURCELL
County Executive

NASSAU COUNTY DEPARTMENT OF HEALTH

240 OLD COUNTRY ROAD, MINEOLA, N.Y. 11501

JOHN J. DOWLING, M.D., M.P.H.
Commissioner

FRANCIS V. PADAR, P.E., M.C.E.
Deputy Commissioner
Division of Environmental Health

July 22, 1983

Bertan Associates
3 Aerial Way
Syosset, N.Y. 11791

Att: Mr. Walter Check, Manager

Re: Application for Approval to Operate a Solid Waste Management Facility

Gentlemen:

Your facility may require a Solid Waste Management Facility permit, in accordance with Article IX of the Nassau County Public Health Ordinance, effective August 1, 1983.

It is necessary that you obtain a permit if your facility falls into either of the following categories:

- The facility generates or accumulates or stores at any time 100 kilograms or more of hazardous wastes

and/or

- The facility accumulates or stores at any time more than 27.5 gallons of liquid industrial wastes which, according to State law, cannot be discharged into the ground

Please complete the enclosed application form and return it to the Nassau County Department of Health within two weeks of the date of this letter. Include the following supplemental data:

- Plot Sketch (see sample enclosed)
- Material Flow Sketch (see sample enclosed)

Should an Engineering Report also be required, you will be contacted by our staff.

If your facility does not fall into either of the categories listed above, please indicate this on the enclosed application form or in a letter to this Department.

If you have any questions concerning the application, please call me at (516) 535-2285.

Very truly yours,

L. Sama

Lawrence Sama
Public Health Engineer
Bureau of Land Resources

Enclosures

APPLICATION FOR APPROVAL TO OPERATE A SOLID WASTE MANAGEMENT FACILITY

Nassau County Department of Health

Instructions

Complete all Sections

Mail this Application Form, along with your Plot Sketch and Material Flow Sketch, within 2 weeks to:

Bureau of Land Resources Management
Nassau County Department of Health
240 Old Country Road
Mineola, N.Y. 11501

For Health Department Use Only

Facility Number:

Date Received:

Department Action

☐ Approved ☐ Interim ☐ Not Required By:

Permit Number | Start Date: | Exp. Date:

1. Facility Name: BERTAN ASSOCIATES INC.	2. Address: 3 AERIAL WAY, SYOSSET, NY, 11791	3. Tel. #: 516-433-3110
4. Owner's Name: AERIAL WAY REALTY	5. Address: 3 AERIAL WAY, SYOSSET, NY, 11791	6. Tel. #: 516-822-477[illegible]
7. On-Site Supervisor: WALTER CHECK, PROD. MGR.	8. Address: 3 AERIAL WAY, SYOSSET, NY, 11791	9. Tel. #: 516-433-3110
10. Engineer (if applicable)	11. Address	12. Tel. #

13. Has this department ever approved plans and specifications and or engineering reports for this facility? ☐ Yes Date ☒ No

14. List Wastes Generated (use additional sheet if needed).

Name of Constituents	Check One: Hazardous	Non-Hazardous	# of Gals. Generated Per Month: Maximum	Average	Maximum # of Gals. Accumulated Before Disposal
CHLOROTHENE	✓		30	20	120
M.E.K.	✓		0	0	0
ISOPROPYL ALCOHOL		✓	0	0	0
FERRIC CHLORIDE		✓	5	1	30
DEVELOPER (MIXTURE OF KEYTONE & AROMATIC HYDROCARBON).		✓	5	1	30

15. Names of Waste Haulers: ATLAS ASSOC., 109 FIFTH AVE, PATTERSON, N.J., 07524
SCAVENGER # NJ D06 5825341.

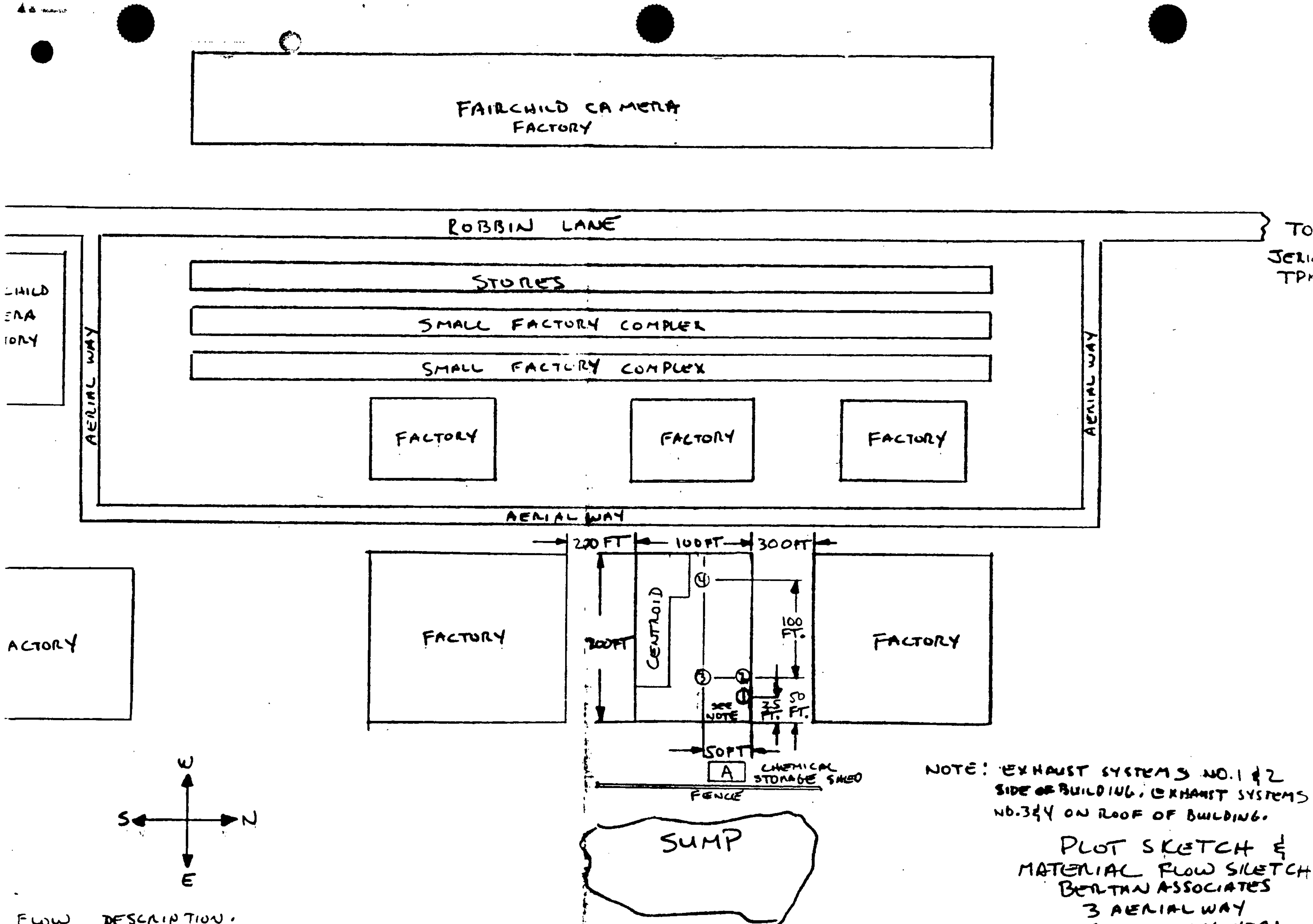
16. Briefly describe facility operation: (use additional sheet if needed)

BERTAN ASSOC. INC. IS AN ELECTRONICS CO. MANUFACTURING HIGH VOLTAGE POWER SUPPLIES. THE CHEMICALS, CHLOROTHENE, M.E.K. & ISOPROPYL ALCOHOL ARE USED IN THESE ASSEMBLIES TO CLEAN THE COMPONENT PARTS. THE CHEMICALS FERRIC CHLORIDE & DEVELOPER (MIXTURE OF KEYTONE & AROMATIC HYDROCARBON) ARE USED IN MAKING PROTOTYPE PRINTED CIRCUIT BOARDS, IN VERY SMALL QUANTITIES.

RECEIVED
AUG 26 1983
NCDH
BLRM

I hereby affirm under penalty of perjury, that the information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief.

Signature	Title	Date
Walter Check	PRODUCTION MANAGER	8/23/83



NOTE: EXHAUST SYSTEMS NO. 1 & 2 SIDE OF BUILDING. EXHAUST SYSTEMS NO. 3 & 4 ON ROOF OF BUILDING.

PLOT SKETCH &
MATERIAL FLOW SKETCH
BERTAN ASSOCIATES
3 AERIAL WAY
SYOSSET, N.Y., 11791
516-433-3110
PLANNER — WALTER CHECI[...]
APPLICANT — [...]

FLOW DESCRIPTION.
[...] ARE RECEIVED AND STORED IN CHEMICAL STORAGE [...]
[T]HEY ARE USED UNDER EXHAUST SYSTEMS #1 & 2.
[...]E STORED AT EXHAUST SYSTEM #2 AWAITING

Nassau County Department of Health
NASSAU COUNTY PUBLIC HEALTH ORDINANCE - ARTICLE XI
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT

FORM I-GENERAL INFORMATION (SEE INSTRUCTION SHEET)

If applicable check the following:
- ☐ Municipality
- ☐ Public School
- ☐ Other tax-supported institutions

If tax exempt facility, enter N.Y. State Exempt Organization Certificate No. and enclose a copy:

For Office Use Only	
Facility I.D. 1385	Date Rec'd. 8/17/92
Fee Exempt Fac. ☐ Yes ☐ No	Permit Months:

Check all that apply to your facility: ☐ Tank Storage ☒ Container Storage ☐ Bulk Storage ☐ Storage of Road De-icing Materials

Reason for submitting application: ☒ New ☐ Renewal ☐ Change ☐ Construction

Facility Name	Street Address	Post Office	State	Zip	Phone
PAX SURFACE CHEMICALS INC.	235A Robbins La	Syosset	NY	11791	822-7860

Facility Mailing Address (If different from above)	Facility Contact Person (Name & Title)	Phone
—	GENE PACKMAN PRES.	822-7860

	Street Address	Post Office	State	Zip	Phone
Facility Owner: PAX SURFACE CHEMICALS INC	235A Robbins La	Syosset	NY	11791	822-7860
Property Owner (If not Facility Owner): BLACKSTONE Realty	166-40 89th Ave	Jamaica	NY	11432	(718) 291-6709
Tank Owner (If not Facility Owner): —	—	—	—	—	—

Name that should appear on Permit (Permittee)
(If different from Facility Owner)

Permittee's Street Address	Post Office	State	Zip	Phone
235A Robbins La	Syosset	NY	11791	822-7860

Permittee's Relationship to Facility Owner: ☒ Same ☐ Operator of Facility ☐ Other (Specify):

Principal Property Tax Code:	School District No.	Section	Block	Lot
	unknown	unknown	unknown	unknown

Forms Attached (Check all that apply): ☐ Form 2 - Tank Registration ☒ Form 3 - Bulk & Container Storage Registration ☐ Form 4 - Storage of Road De-icing Materials

I hereby affirm under penalty of perjury that the information provided on this form and on any attached forms, statements and exhibits is true and correct to the best of my knowledge and belief.

Print Name	Signature	Title	Date
Eugene Packman	[signature]	President	8-13-92

EH 857 4/87
DH - 2512 11/86 Rev 12/87

☐ D.P.

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 3 - BULK AND CONTAINER STORAGE REGISTRATION
SEE INSTRUCTION SHEETS

For Office Use Only

Date Application Received	Facility I.D.
8/17/92	1585
Reviewed By: ReS	Date Reviewed
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No.of Months

Facility Name: PAX SURFACE CHEMICALS, INC

Facility Address: 235A Robbins La Syosset, NY 11791

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area — Area No. 1

Location: ☒ Indoors ☐ Outdoors

Bulk Storage Max.Quantity Stored:

Container Storage Max.No. 12* Max.Vol. 644 gal *AS 55 gal DRUMS

Secondary Containment: ☒ Impervious Berm/Dike ☒ Impervious Floor/Pad ☒ Roof ☒ Walls ☐ Floor Drain & Storage Tank ☐ None ☐ Other (Specify):

Construction Material of Dike & Pad (Check all that Apply) ☒ Concrete ☐ Steel ☒ Other (Specify): EPOXY SEAL UNDER TOPING

Security ☒ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Amount Stored: Units	Storage Method: Average Number	Storage Method: Type
1	26253	D-TARNISH 1364	1	25	1	5	2
1	26263	PAXSTRIP 330	1	25	1	5	2
1	26273	PAXTIQUE 1401	1	10	1	2	2
1	26283	PAXTIQUE 1420	1	20	1	4	2
1	26293	PAXBRITE 408	1	40	1	8	2
1	26293	PAXBRITE 408	1	110	1	2	1
1	26303	CHEMSEAL 330	1	5	1	1	2
1	26313	CHEMMAX 836	1	220	1	4	1
1	8430	Anionic Surfactant 4	1	40	1	less than 1	1
1	10111	Ethylenediamine	1	40	1	less than 1	1
1	9493	Sulfuric Acid	1	10	1	1	2
1	883	Ammonium Hydroxide	1	30	1	less than 1	1

EH 859 4/86
DH-2791 11/86

Date Submitted 8-13-92

Page 1 of 2

☐ D.P.

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 3 - BULK AND CONTAINER STORAGE REGISTRATION
SEE INSTRUCTION SHEETS

For Office Use Only

Date Application Received 8/17/92	Facility I.D. 1385
Reviewed By	Date Reviewed
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No. of Months

Facility Name: PAX SURFACE CHEMICALS, INC.

Facility Address:

Action: ☒ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area — Area No.

Location: ☒ Indoors ☐ Outdoors — Bulk Storage Max. Quantity Stored: — Container Storage Max. No. ____ Max. Vol. ____

Secondary Containment: ☒ Impervious Berm/Dike ☒ Impervious Floor/Pad ☒ Roof ☒ Walls ☐ Floor Drain & Storage Tank ☐ None ☒ Other (Specify): EPOXY SEAL UNDER TOPPING

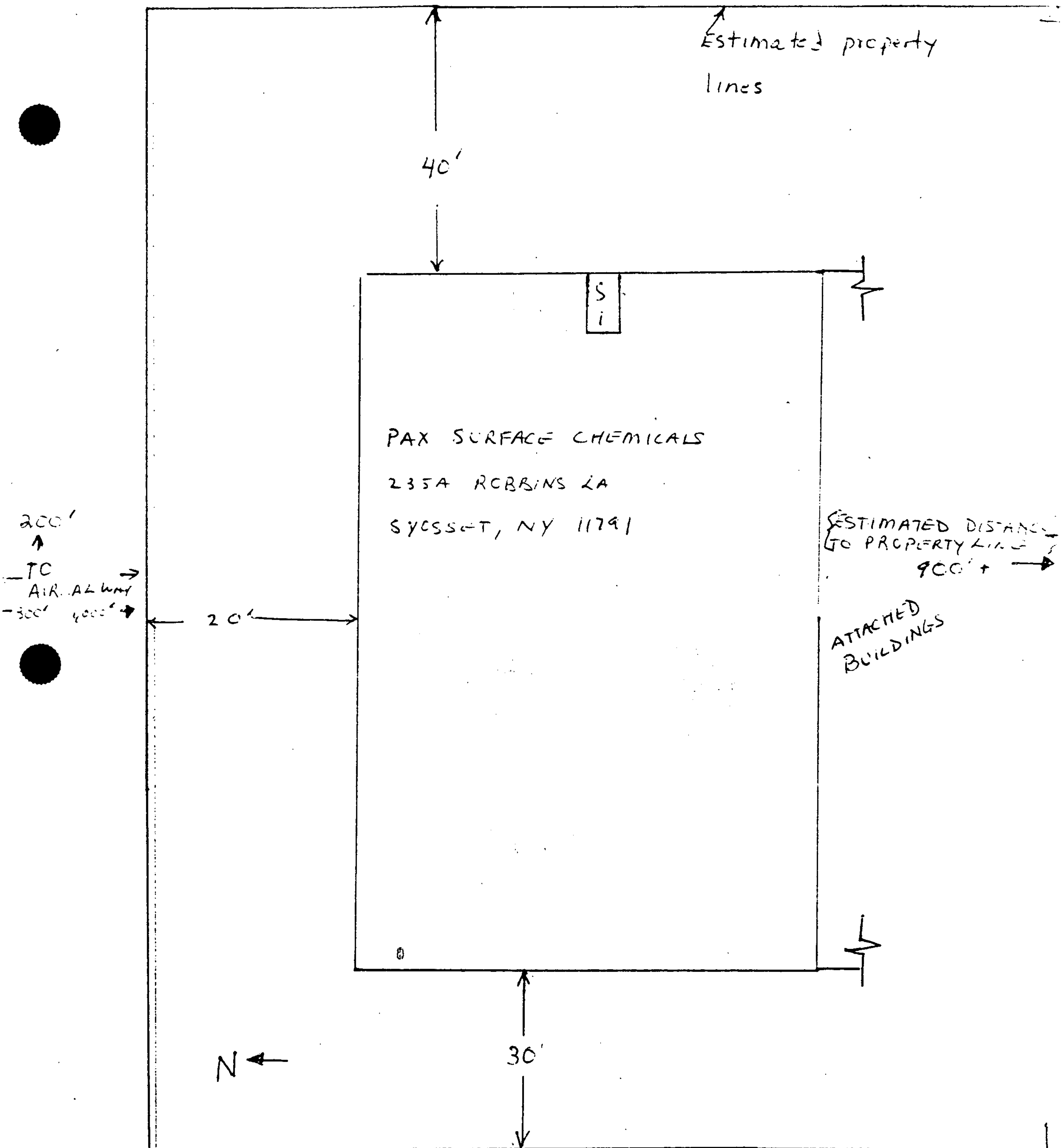
Construction Material of Dike & Pad (Check all that Apply): ☒ Concrete ☐ Steel ☐ Other (Specify): — Security ☒ Yes ☐ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Units	Storage Method: Average Number	Type
1	133	Acetic Acid	1	10	1	less than 1	2
1	7013	Phosphoric Acid	1	10	1	less than 1	2
1	6143	Nitric Acid	1	25	1	less than 1	1
1	4483	Hydrogen Peroxide (33%)	1	4	1	less than 1	2
1	19831	Hydroxyacetic Acid	1	20	1	less than 1	1

EH 859 4/86
DH-2791 1 86

Date Submitted 8-13-92

☐ D.P.



S 1 - Container Storage Area

TO ROBBINS LANE
1,000 FEET
(APPROX)

All Dimensions to streets and property lines are estimated

NASSAU COUNTY
DEPARTMENT of HEALTH

TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT

Facility Number: 000980	Type of Permit: [x] Operation [ ] Construction	Date Issued: 08/01/90	Date Modified: 12/01/90	Expiration Date: 08/01/95
Name of Permittee: EMRO CLEANERS		Address of Permittee: 235 ROBBINS LANE SYOSSET NY		

GENERAL CONDITIONS

1. By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with Article XI, Nassau County Public Health Ordinance.
2. All work carried out under this permit shall conform to the approved plans and specifications. Any amendments must be approved by the Nassau County Department of Health prior to their implementation. The permittee shall notify the Health Department 48 hours in advance of the start of construction.
3. As a condition of the issuance of this permit, the applicant has accepted expressly, by the execution of the application, the full legal responsibility for all damages direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and has agreed to defend, indemnify and save harmless the County from suits, actions, damages and costs of every name and description resulting from the said project.

Name of Facility: EMRO CLEANERS

Mailing Address: 235 ROBBINS LANE
SYOSSET NY 11791-

FACILITY ADDRESS:
235 ROBBINS LANE
SYOSSET NY 11791

THIS FACILITY CONSISTS OF STORAGE AREAS AS LISTED ON PLANS AND APPLICATIONS FILED WITH THIS DEPARTMENT

Tank/Storage Area Number	Capacity	Type of Toxic or Hazardous Material Stored
BULK 0001	100 POUNDS	MULTIPLE CHEMICALS STORED
BULK 0001	345 GALLONS	MULTIPLE CHEMICALS STORED

Authorizing Officer

John J. Dowling, M.D., M.P.H. Commissioner of Health

Nassau County Department of Health
NASSAU COUNTY PUBLIC HEALTH ORDINANCE - ARTICLE XI
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT

FORM 1-GENERAL INFORMATION (SEE INSTRUCTION SHEET)

If applicable, check the following:
☐ Municipality
☐ Public School
☐ Other tax-supported institutions

If tax exempt facility, enter N.Y. State Exempt Organization Certificate No. and enclose copy:

RECEIVED JAN 02 1990

1/9/90

NCDH - BLRM

For Office Use Only

Facility I.D.	Date Rec'd.
980	
Fee Exempt Fac. ☐ Yes ☐ No	Permit Months:

NEW

Check all that apply to your facility: ☐ Tank Storage ☒ Container Storage ☐ Bulk Storage ☐ Storage of Road De-icing Materials

Reason for submitting application: ☒ New ☐ Renewal ☐ Change ☐ Construction

Facility Name	Street Address	Post Office	State	Zip	Phone
DBA [illegible] Cleaners [illegible]	235 [illegible] Lane	Syosset	N.Y.	11791	931-8350

Facility Mailing Address (If different from above)	Facility Contact Person (Name & Title)	Phone
	William Van [illegible] - Pres	931-83[illegible]

	Street Address	Post Office	State	Zip	Phone
Facility Owner					
Property Owner (If not Facility Owner): Mike L[illegible]kakis	235 59th Street	B'klyn	NY	11209	
Tank Owner (If not Facility Owner)					

Name that should appear on Permit (Permittee)
(If different from Facility Owner)

Permittee's Street Address	Post Office	State	Zip	Phone

Permittee's Relationship to Facility Owner: ☐ Same ☐ Operator of Facility ☐ Other (Specify):

Principal Property Tax Code:	School District No.	Section	Block	Lot

Forms Attached (Check all that apply) ☐ Form 2 - Tank Registration ☐ Form 3 - Bulk & Container Storage Registration ☐ Form 4 - Storage of Road De-icing Materials

I hereby affirm under penalty of perjury that the information provided on this form and on any attached forms, statements and exhibits is true and correct to the best of my knowledge and belief.

Print Name	Signature	Title	Date
William Van[illegible]	[illegible]	Pres	[illegible]

EH 857 4/87
DH 2512 11/86

☑ D.P.

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 2 - TANK REGISTRATION
SEE INSTRUCTION SHEETS

RECEIVED

For Office Use Only

Date Application Received: JUL 09 1990	Facility I.D. 980
Reviewed By: NCDH — BLRM	Date Reviewed
Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved	No. of Months 60

Facility Name: FM's Inc [illegible] Cleaners

Facility Address: 235 Robbins Lane Syosset NY 11791

Action	Tank Number	Location	Design Capacity (Gallons)	Material of Construction	Internal Protection	External Protection	Piping	Type	Material Currently or Last Stored: NCDH Number	Material Currently or Last Stored: Name	Status	Tank Installation Date (Month/yr)	Leak Detection Sys.	Secondary Containment	Product Gauge	Dispenser Method	Fill	Additional Information for Abandoned Tanks: Date Last Used (Month/yr)	Condition
~~1~~	~~2~~	~~1~~	~~550 Gals~~	~~1~~	~~9~~	~~2~~	~~2~~			~~Perchloroethylene~~	~~1~~	~~11-75~~	~~5~~	~~5~~	~~1~~	~~2~~	~~1~~		
1	1	1	275	1	5	5	8	1	#2 F.O. 64481	#2 F.O.	R	12-55	5	5	2	3	2		

W.W. 9/27/90

EH 858 4/86

DH-2513 11/86

Date Submitted 7/5/90

Page 2 of 3

☐ D.P.

NASSAU COUNTY DEPARTMENT OF HEALTH
APPLICATION FOR A TOXIC OR HAZARDOUS MATERIALS STORAGE FACILITY PERMIT
FORM 3 - BULK AND CONTAINER STORAGE REGISTRATION
SEE INSTRUCTION SHEETS

RECEIVED

For Office Use Only

Date Application Received JUL 09 1990

Facility I.D. 980

Reviewed By NCDH — BLRM

Date Reviewed

Action: ☐ Not Req'd. ☐ Approved ☐ Disapproved

No. of Months 60

Facility Name [illegible]

Facility Address [illegible]

Action: ☑ Register Existing Area ☐ Add Area ☐ Remove Area ☐ Modify Area Area No. 345

Location: ☑ Indoors ☐ Outdoors

Bulk Storage Max. Quantity Stored: 100 GAL

Container Storage Max. No. 2 Max. Vol. [illegible]

Secondary Containment: ☐ Impervious Berm/Dike ☑ Impervious Floor/Pad ☐ Roof ☐ Walls ☐ Floor Drain & Storage Tank ☐ None ☐ Other (Specify):

Construction Material of Dike & Pad (Check all that Apply) ☑ Concrete ☐ Steel ☐ Other (Specify):

Security ☐ Yes ☑ No

Type	NCDH Number	Material Name	Physical State	Amount Stored: Average Quantity	Amount Stored: Units	Storage Method: Average Number	Storage Method: Type
1	8592	perchloroethylene DRUM	1	100	1	~~1~~ 2	~~2~~ 5
1	8592	PERC D.C.	1	245	1	1	2
2	16972	FILTER CART	2	40	3	5	3
2	18933	STILL BOTTOM	4	2	3	1	3
		WV 4/27/90					
		#2 Fuel oil		275		ABOVE/ OUTDOORS	

EH 859 4/86
DH-2791 11/86

Date Submitted 7/5/90

Page 3 of 3

☐ D.P.

Chemical Solvent Waste Report

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Name	Article XI Permit Number
Emro Cleaners	
Address	**Report Period**
235 Robbins Lane Syosset, N.Y. 11791	1994

List all chemicals and/or solvents purchased during the reporting period.
Indicate for each the purpose or use, trade name or supplier and the quantity purchased.

Name of Chemical or Solvent	How is Chemical or Solvent used?	Trade Name or Supplier	Quantity Purchased
Perchlorethylene	Dry Cleaning	Kliegman Bros	63.3 Gal
"	" "	" "	75.0 Gal
Ins. Soap	" "	Fabricam Fabra Clean	15 Gal
" "	" "	" "	" "
" "	" "	" "	" "
Total			

123\bowls\cswrr1 2-2-86

(continued on reverse)

Chemical/Solvent Waste Report

For each shipment of wastes, complete the following table with the indicated information.
ATTACH COPIES OF MANIFIESTS OR RECEIPTS FROM SCAVENGER FOR EACH SHIPMENT MADE.

Date of Shipment	Description of waste	Amount Removed	Shipped By: Transporter's name	Shipped By: Transporter's Address	Shipped By: D.E.C. Registration Number	Shipped to (Final disposal site for waste)
1/31/94	Tetrachoroethylene	210 lbs	Safety Kleen	80 Seabro Av	ILD-984908202	Hebron,
				Amityville, N.Y.		Ohio
5/11	"	140 lbs	"	" "	"	"
8/3	"	405 lbs	"	" "	"	"
10/2	"	140	"	" "	"	"
12/14		350 lbs	"	" "	"	"
12/22	"	560 lbs	"	" "	"	"
Total						

List any spills that occurred during the reporting period.

Date of Spill	Amount of spill	Describe the nature of the spill.

Signature of Company Representative.	Title	Date

123\howie\cswr-2 2/2/95

NASSAU COUNTY DEPARTMENT OF HEALTH

240 OLD COUNTRY ROAD
MINEOLA, N.Y. 11501

FRANCIS T. PURCELL
COUNTY EXECUTIVE

JOHN J. DOWLING, M.D., M.P.H.
COMMISSIONER

FRANCIS V. PADAR, P.E.
ASST. DEPUTY COMMISSIONER
DIV. OF ENVIRONMENTAL SERVICES

Certified

August 23, 1978

Mr. Louis Perlman
c/o Metallurgical Processing Corp.
180 Michael Drive
Syosset, N. Y. 11791

Dear Mr. Perlman:

At our meeting on August 17, 1978, several items were discussed regarding the removal of various chemicals and liquid wastes from the premises. The following items were discussed:

1. No liquid wastes are to be discharged into underground wells or cesspools until it has been demonstrated to this Department that the effluent meets those standards set forth in your SPDES permit #NY-0076244.

2. Liquid wastes on the floor of the treatment room are to be properly removed on or before Sept. 1, 1978.

3. The chemical storage area in rear of main building must be cleared of all chemicals on or before Sept. 1, 1978. This must be in a proper and acceptable manner and in accordance with discharge restrictions set forth in item #1 above.

4. Information regarding the removal of all liquid waste from tanks in the treatment room must be forwarded to this Department on or before Sept. 11, 1978.

5. Liquid wastes in the treatment tanks must be removed by licensed scavenger or treated prior to disposal and must be removed from the premises on or before Sept. 30, 1978.

If you have any questions or comments regarding the above, please do not hesitate to contact me as soon as possible.

Very truly yours,

MM:ceg:r

Michael Mangino
Chief, Enforcement Section
Bureau of Wastewater Management

BACTERIOLOGICAL AND CHEMICAL EXAMINATION OF PUBLIC WELL WATER - NASSAU COUNTY

DIVISION OF LABORATORIES AND RESEARCH

Nassau County Department of Health

FIELD NO. [illegible]

DATE 7/12/78

TIME 11:00

COL. BY Gene M

☑ ROUTINE ☐ RE-SAMPLE ☐ SPECIAL

DL 7 S

PREMISES Metallurgic Processing Corp.

NAME OF OWNER OR DISTRICT

LOCATION Micheal Dr.

POINT OF COLLECTION Dry Well

☐ BACTERIOLOGICAL EXAMINATION ☑ CHEMICAL EXAM., COMPLETE ☐ CHEMICAL EXAM., SPECIAL

TAP FLAMED: ☐ YES ☐ NO HOW?

CHLORINE RESIDUAL:

OT OT+A pH

IF SAMPLE IS FROM WELL, IS SANITARY SURVEY ☐ SATISFACTORY? ☐ UNSATISFACTORY? (Explain)

REMARKS, EXPLANATIONS:

Cd, Tot Cr, Cr^{+6}, Cu, F, Fe, Ni, ~~SO~~, SO_4, Zn, Cl, pH

Treated Waste from:

Note: Plating Operation hasn't been run in approx. 1 mo. Dry well down to 2-3 ft of Bottom. J. Kelly claims that the Water in Dry well may show high levels of inorganics.

Test	Code	Result
Fluoride (Dis Filtered)	0.71	0.72
Total Iron	50	20.76
Hydrogen Ion Conc. pH	36	6.6
Chlorides	24-29	340
Cd	41-45	0.02
SO_4	35-40	110
Zn	29-33	6.0
Ni	23-28	0.74
Cu	17-22	0.30
Tot Cr		0.10
Cr +6	55-57	<0.0

Printed form fields (not filled): Free CO_2 (Nomograph), Alk., Odor Hot, Odor Cold, Turbidity, Color, 0.1 ml, 1 ml, 10 ml, Vol., % Gas Lactose Broth, Lact Broth to Brill. Inn Green, Results Confirmed, COL I. MPN/100 ML, APC/ML 35° C. 24 hrs., Number, Rec Code, Date, Lab. I.D., T-ALK, Total Hardness, Oxygen Consumed, $(NH_4)_2C_2O_4$, $KMnO_4$, Nitrates, Nitrites, Albuminoid N, Ammonia N, Phos. (Ortho), Phos. (Total), P. ALK, Temp (Lab), Temp (Field), CA Hardness, D.O. (LAB), MBAS, Spec. Cond. (Field), Solids, Dish No., Dish + Solids, Total Solids, General Analysis, mg/L.

NAME OF PLANT	LOCATION
METALLURGICAL PROCESSING CORP.	180 MICHAEL DRIVE, SYOSSET,

DAYS	DAY OF MONTH	FLOW (GPD) Discharge No. 001	FLOW (GPD) Discharge No.	FLOW (GPD) Discharge No.	PH Daily	PH Weekly	CR 06 0.1 (mg/l) Daily	CR 06 0.1 (mg/l) Weekly
	1	13,710			7.3		0.1	
	2	13,350			7.7		0.0	
	3	13,610			7.1		0.0	
	4	13,320			7.9		0.1	
	5	13,490			7.5		0.0	
	6							
	7							
	8	12,880			8.1		0.0	
	9	13,170			8.3		0.0	
	10	13,440			7.5		0.0	
	11	13,210			7.3		0.1	
	12	13,750			7.5		0.1	
	13							
	14							
	15	12,900			7.6		0.0	
	16	13,370			7.8		0.0	
	17	13,820			7.5		0.2	
	18	13,690			7.7		0.0	
	19	13,850			8.0		0.1	
	20							
	21							
	22	13,700			7.6		0.1	
	23	13,430			7.5		0.1	
	24	13,650			7.2		0.0	
	25	13,900			7.8		0.0	
	26	13,600			7.5		0.1	
	27							
	28							
	29	13,450			7.7		0.1	
	30	12,910			7.3		0.1	
	31	13,050			7.9		0.1	
AVERAGES		13,295			7.5		.06	

92-15-2 (8/75)

Firm Name **Metallurgical Process** NY0076244

180 Michael Dr; Syosset

	.1	1.0	1.0	.02	2.0	500	3.0	6.5 / 8.5	.6	500	5.
Month	Cr^{+6}	Cr^{tot}	Cu	Cd	Ni	Cl	F	pH	Fe	SO_4	Zn
10-27-77	<.01	.01	.7	205	*	50	*	7.1	1.17	5	.2
11-9-77	*	*	*	*	*	10	.14	7.4	*	*	*
2-1-78	.01	.20	.05	.013	.22	*	.17	8.2	.35	<3	.4
	treatment facility										
7-18-78	.01	.09	.30	.022	.74	34.0	.72	6.6	.76	*	[illegible]
	Drywell										

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 (Room 201) November 15, 1977

Peter A. A. Berle
Commissioner

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Metallurgical Processing Corp.
180 Michael Drive
Syosset, New York 11791

Attention: Mr. William Foster, Finishing Supt.

Re: MODIFICATION OF POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO. NY-0076244 (GWI) Oyster Bay (T), Nassau Co.

Dear Mr. Foster:

This is to inform you that pursuant to Environmental Conservation Law ("ECL"), Article 17, Title 8 (McKinney's) and 6 NYCRR, Part 757, the New York State Department of Environmental Conservation has made a determination to modify your referenced Pollutant Discharge Elimination System Permit as indicated in the enclosed revised permit page entitled Final Effluent Limitations and Monitoring Requirements which supercede (and/or supplement) previous corresponding page. The remainder of the Permit continues in full force and effect.

The following effluent parameters have been added to the list:
Cyanide, Iron, Sulfate, Tin and Chlorine.

Unless otherwise specified, this modification will become effective immediately unless you petition, pursuant to ECL Section 17-0907, that you be given an opportunity to be heard in connection with this determination and where applicable, if no written objection is received by this office within 30 days after receipt of this modification by the Regional Administrator of EPA. Any such petition for a hearing shall contain specific evidence to support your contention that a hearing is necessary and thay you were not previously given an opportuni to be heard.

Very truly yours,

George K. Hansen

George K. Hansen, P.E.
Chief, P.D.E.S. Permit Section
Division of Pure Waters

Enclosure
cc: Region #1
Mr. Crandall - BMS
Nassau Co. H.D.
File

Part I
Page of
Facility ID No.: NY 007 3244

MODIFIED - 11/15/77

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning Nov. 15, 1977 and lasting until April 17, 1980 the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number	Effluent Parameter	Discharge Limitations kg/day (lbs/day) Daily Avg.	Daily Max.	Other Units (Specify) Daily Avg.	Daily Max.	Monitoring Reqmts. Measurement Frequency	Sample Type
001	Flow					Weekly	
	Cadmium				.02 mg/l	"	Composite
	Chromium - Total				1 "	"	"
	Chromium - Hexavalent				.1 "	"	"
	Copper				.4 "	"	"
	Cyanide				.4 "	"	"
	Fluoride				3 "	"	"
	Iron				.6 "	"	"
	Nickel				2 "	"	"
	Sulfate				500 "	"	"
	Tin				1 "	"	"
	Zinc				.6 "	"	"
	Chlorine				.1 "	"	Grab

Also Subject to Schedule "B"

The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units an shall be monitored as follows: daily grab

Samples taken in compliance with the monitoring requirements specified above shall be tak at the following location(s):

The daily average discharge is the total discharge by weight or in other appropriate unit as specified herein, during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summat of all the measured daily discharges in appropriate units as specified herein divided by number of days during the calendar month when the measurements were made.

The daily maximum discharge means the total discharge by weight or in other appropriate as specified herein, during any calendar day.

cc: SPDES File
Region 1 - Ref. #28-0079
Nassau Co. Dept. of Health
Mr. Crandall - BMS
Mr. Quinn - BIP

Application No. : N 007 6244

Name of Permittee : Metallurgical Processing

Effective Date : April 17, 1975

Expiration Date : April 17, 1980

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) DISCHARGE PERMIT

Special Conditions (Part I)

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Federal Water Pollution Control Act Amendments of 1972, P. L. 92-500, October 18, 1972 (33 U.S.C. § 1251 et. seq.) (hereinafter referred to as "the Act").

Metallurgical Processing Corp.
(Full Name of Permittee)

is authorized by William L. Garvey, P.E., Director, Bureau of Standards & Compliance
(Designated Representative of Commissioner of the Department of Environmental Conservation)

to discharge from 180 Michael Drive
(Street Address of Discharging Facility)
Syosset, New York 11791

Oyster Bay (T), Nassau County

to Ground water
(Name of Receiving Waters)

in accordance with the following special and general conditions:

The specific effluent limitations and other pollution controls applicable to the discharge permitted herein are set forth in the special conditions. Also set forth are self-monitoring and reporting requirements. Unless otherwise specified, the permittee shall submit original copies of all reports to the Central Office and the appropriate Regional Office of the Department of Environmental Conservation and the EPA Region II Regional Administrator. Except for data determined to be confidential under Section 17-0805 of the Environmental Conservation Law or Section 308 of the Act, all such reports shall be available for public inspection at the offices of the Department of Environmental Conservation and the Regional Administrator of EPA Region II. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 71-1933 of the Environmental Conservation Law or Section 309 of the Act.

Final Effluent Limitations

During the period beginning EDP (Give Date) and lasting until the date of expiration of this permit, discharges from outfalls 001 (Specify Outfall Numb shall be limited and monitored by the permittee as specified below:

(a) The following shall be limited and monitored by the permittee as specified:

		Discharge Limitation in kg/day (lbs./day)		Other Limitations (Specify Units)		Monitoring Requirements	
Outfall Number	Effluent Characteristic	Daily Average	Daily Maximum	Average	Maximum	Measurement Frequency	Samp Type
001	Flow				N/A	Weekly	
	Chromium (Hexavalent)				.1 mg/1	"	Compo
	Chromium (Total)				1.0 mg/1	"	"
	Copper				.4 mg/1	"	"
	Cadmium				.02 mg/1	"	"
	Nickel				1.0 mg/1	"	"
	Fluoride				3.0 mg/1	"	"

Also subject to attached Schedule "B"

For the purposes of this subsection, the daily average discharge is the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating.

For the purposes of this subsection, the daily maximum discharge means the total discharge by weight during any calendar day.

(b) The pH shall not be less than 5.5 nor greater than 8.5. The pH shall be monitored as follows: Daily

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :
Address:

Inspector

DATE	COMMENTS
8/18/78	To: L. Sama
	From: J. Schechter
	Subject: Conference at Metallurgical Processing Corporation
	180 Michael Drive Syosset
	On 8/17/78 at 11:15 AM a conference was held at M.P.C., 180 Michael Drive Syosset. Those attending the conference included:
	M. Mangino, Nassau County Dept. Health
	J. Schechter, " " " "
	Louis Perlman, President, M.P.C.
	Rick Klein, Plant Engineer, Thermo National Industries
	Dan Miller, Maintenance Engineer, M.P.C.
	201-589-3032
	M.P.C. is a division of Thermo National Industries, 108 Johnson St., Newark, N.J.; Herb Doblin, President. It is being closed down. Current operations include copper plating and heat treating.
	The conference was held to discuss the poor condition of the plant grounds, spillage of dry chemicals upon floor of storage room at the rear of the plant, and the cleanup of the wastewater treatment room.
	It was agreed that:
	(1) The chemical storage room, ~~and~~ plant grounds and treatment room floor would be

EH 109a 1/68
DH-1198. 9/71

Michael K.

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :	Inspector
Address:	

DATE	COMMENTS
	cleaned by August 28, 1978 (Final disposition of chemicals would be verified by M.P.C. + copies of records given to N.C.D.H.)
	2) After Labor Day, 9/8/78, a final decision would be made to either treat the wastewater ~~[illegible]~~ in the treatment room tanks, or have it removed by a licensed industrial scavenger. A list of scavengers was supplied to Rick Klein.
	3) ~~[illegible]~~ Treated wastewater would NOT be discharged to groundwaters without first sampling to determine whether effluent limits were met, and notifying NCDH for verification. In addition wastewater, or chemicals would only be removed by a licensed scavenger + copies of records supplied to N.C.D.H. for verification of final disposal site.
	J. Schechter

EH 109a 1/68
DH-1198, 9/71

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :
Address:

Inspector

DATE	COMMENTS
	TO: L. SAMA
	FROM: J. Schechter
	Subject: INSPECTION OF Metallurgical Processing CORP. 180 Michael DRIVE SYOSSET
8/16/78	On 8/15/78 an inspection was conducted at the above firm. Those attending the inspection included:
	J. Schechter, Nassau County Dept. Health
	G. Mauleos, NCDH
	DAN Mutter, Heat Treatment supervisor - Metallurgical Processing Corp.
	The inspection revealed that plating and heat treating is continuing at this firm, although plating is done at a reduced level. At the time of inspection the plating area was not in use. Mr. Mutter stated that ~~c~~ only copper plating was currently being done. No plating employees were available to verify this. Mr. Mutter stated that the plant is closing down within a few months. The plant manager, plant chemist and president of the firm were not available at the time of inspection for verification.

EH 109a 1/68
DH-1198. 9/71

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent:	Inspector
Address:	

DATE	COMMENTS

Several violations were noted:

① The Treatment room floor was covered with chemical waste which had overflowed from the non-functioning Treatment Tanks. (wastes from the plating area drain To These Tanks.) The plant chemist is no longer employed at The FIRM.

② The chemical storage room roof was IN DISrepair - spillage of chemicals was noted on The FLOOR. Dry chemicals were water soaked.

③ PLANT grounds were IN POOR CONDITION - carboys of acids were stored in The open; a drum containing waste sludge/chemicals was open at The Top and beginning To leak.

The inspection also revealed 3 underground Tanks on The premises. These contained:

① Quenching oil -
② Degreasing fluid ← not presently filled according to Mr. Muller
③ Gasoline

Three vapor degreasing units are used in The heat Treating area. Two are presently not operating - one of which is filled with water.

EH 109a 1/68
DH-1198. 9/71

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :	Inspector
Address:	

DATE	COMMENTS
	An inspection of the leaching pool to which the treated wastewater is discharged revealed no flow.
	Mr. Mutter was requested to have representatives of the corporation call this office concerning correction of the violations. He was told not to operate the treatment tank pumps, as discharge of untreated waste would be a violation of groundwater standards & effluent limits as set forth in the SPDES permit.
	J Schechter

EH 109a 1/68
DH-1198. 9/71

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NYS INDUSTRIAL INSPECTION AND STATUS REPORT FORM

Company Name : Metallurgical Processing Corp
Permit No. : NY 0076244
Location : Nassau County
Mailing Address: 180 Michael Drive
Syosset, N.Y.
11791

Date of Inspection: 1-16-78
Date(s) of Previous Inspection(s): 10-21-75
Previous Inspector(s): John Fiedler
Inspection(s): John Fiedler
Receiving Waters: Ground water
W.Q. Classification: GA
Weather Condition: Clear & Cold

Company Representative(s), Title (s):
John Kelly - Plant Chemist
Number of Discharges Reported: 1
Number of Discharges Observed: 1
Action Taken or Planned on Unreported Discharges:

---

(1) PROCESS

(a) Industrial Process: Plating
(b) Reported Production:
(c) Current Production
(d) Rated Production:
(e) Raw Materials Used: Plating solutions
(f) What process modification, expansions, etc. have been made that would either increase or decrease raw waste loads, water usage, etc. that have not been previously reported:
at time of inspection no plating being done - no work in shop
(g) Industrial process flow diagram indicating wastewater sources (attach copy if on file and verify with company):
on file
(h) Continuity of Operation: ✓ Batch ____ Semi-Continuous ____ Continuous

(2) EFFLUENT LIMITATIONS VIOLATIONS (Based upon Self-Monitoring Data)

Discharge No.	Parameter	Permit Limitation	Reported Discharge	Date/Period of Violation

92-15-1 (7/75)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

92-15-1 (7/75)

Inspection & Statu
Permit No. [illegible]

(2.1) EFFLUENT DISCHARGE NO. 001
(a) Wastewater Flow: 7200 gpd
(b) Measuring Device used for Flow: meter
(c) Wastewater Characteristics: Clear
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company): Fancy integrated systems

(e) Appearance of Effluent(s): (1) visible oil None (2) foam None (3) floating solids None (4) Suspended Solids None (5) color None (6) Temperature — (7) Odor None (8) other

(f) Appearance of Receiving waters: (1) visible oil (2) foam (3) floating solids (4) turbidity (5) sludge deposits (6) color (7) temperature (8) odor (9) other

(2.2) EFFLUENT DISCHARGE NO. Picture Taken:
(a) Wastewater Flow:
(b) Measuring Device used for Flow:
(c) Wastewater Characteristics:
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company):

(e) Appearance of Effluent(s): (1) visible oil (2) foam (3) floating solids (4) suspended solids (5) color (6) temperature (7) odor (8) other

(f) Appearance of Receiving waters: (1) visible oil (2) foam (3) floating solids (4) turbidity (5) sludge deposits (6) color (7) temperature (8) odor (9) other

(2.3) EFFLUENT DISCHARGE NO.
(a) Wastewater Flow:
(b) Measuring Device used for Flow:
(c) Wastewater Characteristics:
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company):

(e) Appearance of Effluent(s): (1) visible oil (2) foam (3) floating solids (4) suspended solids (5) color (6) temperature (7) odor (8) other

(f) Appearance of Receiving waters: (1) visible oil (2) foam (3) floating solids (4) turbidity (5) sludge deposits (6) color (7) temperature (8) odor (9) other

(3) COMPLIANCE
- (a) Is company complying with schedule of compliance? NA
- (b) What is the current projection of the company regarding compliance with future dates in Compliance Schedule?
- (c) Is company complying with any additional compliance requirements such as a special report submittal to the proper regulatory agency? NA
- (d) Has company notified the proper regulatory agency of any non-compliance with permit conditions? No
- *(e) Has company requested modification of any permit conditions other than permit sampling schedules? No
- *(f) Are any modifications appropriate? NA

MISCELLANEOUS

(4) SELF-MONITORING PROGRAM
- (a) Does quantity of reported self-monitoring data and signing official comply with requirements of permit? No - see comment
- (b) What is the apparent quality of plant records that are required under the conditions of the permit? None
- (c) If net values are applicable, is the surface water intake sampled and analyzed? NA
- (d) Is there any additional monitoring being performed by the plant that has not been reported? No If yes, what parameters and frequency is involved and what conclusions can be drawn from data?
- (e) Do sampling locations appear to be adequate to obtain representative samples? yes
- (f) Has company idendified effluent sampling point used for each discharge pipe by providing a sketch of flow diagram? yes
- (g) How frequently and accurately is continuous monitoring equipment calibrated, and how well is the equipment maintained? NA

(h) In your judgement, do sampling procedures, frequency and type of sample typify plant's daily discharge (i.e. are maximum production periods, batch discharges, etc. reflected in monitoring data)? Yes

(i) Does plant perform its own analysis? Yes
If not, what laboratory is analysis contracted to?
If yes, what is the appearance of plant's laborabory?
Laboratory need cleaning - condition Poor

(j) Do all sampling and analytical methods conform to the guidelines published pursuant to Section 304(g) of 1972 FWPCAA?
yes

(k) Has plant requested modification to permit sampling schedules?
Yes - Permit Modified - 11-15-77

(1) Are modifications appropriated?
Yes

5) MISCELLANEOUS

(a) Did the permit application truly represent conditions at the plant site? yes

(b) Are any of the following toxic pollutants or compounds containing them, being discharged that would require modification of the permit: No X Yes ____ (Check those Applicable)

Aldrin		DDE	
Dieldren		DDT	
Benzidine		Endrin	
Cadmium		Mercury	
Cyanide		Polychlorinated biphenyls	
DDD (TDE)		Toxaphane	

If yes, what modifications are necessary?

(c) Is sludge being generated at plant? yes
If yes, is plant reporting on its disposal? yes
If sludge disposal is at plant site, is there any visual evidence or hazards associated with entry of pollutants into surface or ground waters? No
If not at plant, where is the disposal site, and is it acceptable to regulatory agencies? Sludge hauled away by Mon Stone Chemical Waste Hauler

(d) What is the appearance of plant grounds?
Poor

(e) Is there any discharge of unreported contaminated storm runoff?
No

(f) Is the treatment system maintained in good working order and operated efficiently? No

(g) What alternate power supply provisions exist for waste treatment facilities? None
If none, what happens to the wastewater when there is a power failure? equalization clean

(h) Have all bypasses of waste treatment facilities been eliminated: yes
If not, why? If not, is flow monitoring installed in bypass?

(i) Are there any obvious air emission, noise, radiation, pesticides, or solid wastes problems at the plant? No
What are they?
If yes, send copy of this report to the appropriate personnel.

(j) Does plant require a Spill Prevention Control Countermeasure Plan? No
NOTE: SPCC plan is required if the permittee stores more than;
1. 1,320 gallons of oil above ground;
2. 660 gallons of oil in a single container above ground;
3. 42,000 gallons of oil underground.

If so, is the plant approved by a licensed P.E.?

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Inspection & Status
Permit No. 0C 16244

SUMMARY AND RECOMMENDATIONS

Violations and/or Problems	Recommended Action
1. testing for Cadmium not being accomplished	None
2. operation reports not filed for Nov 1977	
3. treatment facilities not in good condition.	

Comments

1. General condition of entire plant are poor.
2. Plant ceased operations in August 1976 returned to operation November '77.
3. Suggested entire shop and treating area be cleaned and maintained properly.

Inspector Signature: John F Welsch

Name: John F Welsch

Title: SANITARIAN II

Date: 1-16-78

NEW YORK ST. . DEPARTMENT OF ENVIRONMENTAL C ERVATION

NYS INDUSTRIAL INSPECTION
AND
STATUS REPORT FORM

Company Name : Metalurigcal Processing Corp.
Permit No. : NY 0076244
Location : Nassau County
Mailing Address: 180 Michael Drive
Syosset, New York
11791

Date of Inspection: 10-21-75
Date(s) of Previous Inspection(s): -
Previous Inspector(s): -
Receiving Waters: Ground Waters
W.Q. Classification: GA
Weather Condition: Clear

Company Representative(s), Title (s):
John Kelly - Plant Chemist
Number of Discharges Reported:
Number of Discharges Observed: 2
Action Taken or Planned on Unreported Discharges:

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(1) PROCESS

(a) Industrial Process: Plating
(b) Reported Production:
(c) Current Production
(d) Rated Production:
(e) Raw Materials Used:
(f) What process modification, expansions, etc. have been made that would either increase or decrease raw waste loads, water usage, etc. that have not been previously reported:
NONE

(g) Industrial process flow diagram indicating wastewater sources (attach copy if on file and verify with company): ON FILE

(h) Continuity of Operation: X Batch ____ Semi-Continuous
____ Continuous

(2) EFFLUENT LIMITATIONS VIOLATIONS (Based upon Self-Monitoring Data)

Discharge No.	Parameter	Permit Limitation	Reported Discharge	Date/Period of Violation

Permit No.
NY0076244

(2.1) EFFLUENT DISCHARGE NO. 001
(a) Wastewater Flow: 13,500 gpd
(b) Measuring Device used for Flow: Flow Meter
(c) Wastewater Characteristics:
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company):
Lancy System

(e) Appearance of Effluent(s): (1) visible oil NO (2) foam NO (3) floating solids NO (4) Suspended Solids NO (5) color NONE (6) Temperature NA (7) Odor NONE (8) other ____

(f) Appearance of Receiving waters: (1) visible oil ____ (2) foam ____ (3) floating solids ____ (4) turbidity ____ (5) sludge deposits ____ (6) color ____ (7) temperature ____ (8) odor ____ (9) other ____

(2.2) EFFLUENT DISCHARGE NO. 002 Sanitary-Sewage Picture Taken:
(a) Wastewater Flow:
(b) Measuring Device used for Flow:
(c) Wastewater Characteristics:
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company):

(e) Appearance of Effluent(s): (1) visible oil ____ (2) foam ____ (3) floating solids ____ (4) suspended solids ____ (5) color ____ (6) temperature ____ (7) odor ____ (8) other ____

(f) Appearance of Receiving waters: (1) visible oil ____ (2) foam ____ (3) floating solids ____ (4) turbidity ____ (5) sludge deposits ____ (6) color ____ (7) temperature ____ (8) odor ____ (9) other ____

(2.3) EFFLUENT DISCHARGE NO.
(a) Wastewater Flow:
(b) Measuring Device used for Flow:
(c) Wastewater Characteristics:
(d) Type of treatment units and treatment sequence sketch (attach copy if on file and verify with company):

(e) Appearance of Effluent(s): (1) visible oil ____ (2) foam ____ (3) floating solids ____ (4) suspended solids ____ (5) color ____ (6) temperature ____ (7) odor ____ (8) other ____

(f) Appearance of Receiving waters: (1) visible oil ____ (2) foam ____ (3) floating solids ____ (4) turbidity ____ (5) sludge deposits ____ (6) color ____ (7) temperature ____ (8) odor ____ (9) other ____

(3) COMPLIANCE

(a) Is company complying with schedule of compliance? NA

(b) What is the current projection of the company regarding compliance with future dates in Compliance Schedule? NA

(c) Is company complying with any additional compliance requirements such as a special report submittal to the proper regulatory agency? NA

(d) Has company notified the proper regulatory agency of any non-compliance with permit conditions? NA

*(e) Has company requested modification of any permit conditions other than permit sampling schedules? NO

*(f) Are any modifications appropriate? NO

(4) SELF-MONITORING PROGRAM

(a) Does quantity of reported self-monitoring data and signing official comply with requirements of permit? YES

(b) What is the apparent quality of plant records that are required under the conditions of the permit? NOT AVAILABLE

(c) If net values are applicable, is the surface water intake sampled and analyzed? NA

(d) Is there any additional monitoring being performed by the plant that has not been reported? If yes, what parameters and frequency is involved and what conclusions can be drawn from data? NA

(e) Do sampling locations appear to be adequate to obtain representative samples? YES

(f) Has company idendified effluent sampling point used for each discharge pipe by providing a sketch of flow diagram? YES

(g) How frequently and accurately is continuous monitoring equipment calibrated, and how well is the equipment maintained? NA

(h) In your judgement, do sampling procedures, frequency and type of sample typify plant's daily discharge (i.e. are maximum production periods, batch discharges, etc. reflected in monitoring data)? NO - CD-Testing not being done.

(i) Does plant perform its own analysis? YES
If not, what laboratory is analysis contracted to?
If yes, what is the appearance of plant's laborabory?

(j) Do all sampling and analytical methods conform to the guidelines published pursuant to Section 304(g) of 1972 FWPCAA?
YES

(k) Has plant requested modification to permit sampling schedules?
NO

(l) Are modifications appropriated?
NO

(5). MISCELLANEOUS

(a) Did the permit application truly represent conditions at the plant site? YES

(b) Are any of the following toxic pollutants or compounds containing them, being discharged that would require modification of the permit: No X Yes ____ (Check those Applicable)

Aldrin		DDE	
Dieldren		DDT	
Benzidine		Endrin	
Cadmium		Mercury	
Cyanide		Polychlorinated biphenyls	
DDD (TDE)		Toxaphane	

If yes, what modifications are necessary?

(c) Is sludge being generated at plant? YES
If yes, is plant reporting on its disposal? NO
If sludge disposal is at plant site, is there any visual evidence or hazards associated with entry of pollutants into surface or ground waters? NO
If not at plant, where is the disposal site, and is it acceptable to regulatory agencies? NONE REMOVED

(d) What is the appearance of plant grounds? POOR

(e) Is there any discharge of unreported contaminated storm runoff? NO

(f) Is the treatment system maintained in good working order and operated efficiently? NO

(g) What alternate power supply provisions exist for waste treatment facilities? NO
If none, what happens to the wastewater when there is a power failure? Plant Shuts Down

(h) Have all bypasses of waste treatment facilities been eliminated: YES
If not, why? If not, is flow monitoring installed in bypass?

(i) Are there any obvious air emission, noise, radiation, pesticides, or solid wastes problems at the plant? NO
What are they?
If yes, send copy of this report to the appropriate personnel.

(j) Does plant require a Spill Prevention Control Countermeasure Plan? NA
NOTE: SPCC plan is required if the permittee stores more than;
1. 1,320 gallons of oil above ground;
2. 660 gallons of oil in a single container above ground;
3. 42,000 gallons of oil underground.

If so, is the plant approved by a licensed P.E.?

SUMMARY AND RECOMMENDATIONS

Violations and/or Problems	Recommended Action
1). Permit not available at time of inspection.	
2). Operating records not available.	
3). Plant grounds not clean.	
4). General housekeeping poor.	
5). Treatment area & facilities kept poorly.	
6). Testing for Cadmium not being performed.	

Comments

General condition of plant unsatisfactory.

Inspector Signature: ____________________

Name: John F. Welsch

Title: Chief Industrial Programs

Date: 10/21/75

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE - SHORT FORM C

To be filed only by persons engaged in manufacturing and mining

Do not attempt to complete this form before reading accompanying instructions

Please print or type

1. Name, address, location, and telephone number of facility producing discharge

   A. Name Metallurgical Processing Corp.

   B. Mailing address

      1. Street address 180 Michael Drive

      2. Post Office Syosset 3. State New York

      4. County Nassau 5. ZIP 11791

   C. Location:

      1. Street same as above

      2. (C, T, V) ______ 3. County ______

      4. State ______

   D. Telephone No. 516 / 921-6800
   Area Code

2. SIC ☐☐☐☐
   (Leave Blank)

3. Number of employees 66

   If all your waste is discharged to a publicly owned waste treatment facility and to the best of your knowledge you are not required to obtain a discharge permit, proceed to item 4. Otherwise proceed directly to item 5.

9. (a) Check here if discharge occurs all year ☒ , or

(b) Check the month(s) discharge occurs:

1. ☐ January 2. ☐ February 3. ☐ March 4. ☐ April 5. ☐ May

6. ☐ June 7. ☐ July 8. ☐ August 9. ☐ September 10. ☐ October

11. ☐ November 12. ☐ December

(c) Check how many days per week:

1. ☐ 1 2. ☐ 2-3 3. ☒ 4-5 4. ☐ 6-7

10. Types of waste water discharged to surface waters only (check as applicable)

Discharge per operating day	Flow, gallons per operating day					Volume treated before discharging (percent)				
	0.1-999 (1)	1000-4999 (2)	5000-9999 (3)	10,000-49,999 (4)	50,000-or more (5)	None (6)	0.1-29.9 (7)	30-64.9 (8)	65-94.9 (9)	95-100 (10)
A. Sanitary, daily average										
B. Cooling water, etc. daily average										
C. Process water, daily average				X						X
D. Maximum per operating day for total discharge (all types)										

11. If any of the three types of waste identified in item 10, either treated or untreated, are discharged to places other than surface waters, check below as applicable.

Waste water is discharged to:	Average flow, gallons per operating day				
	0.1-999 (1)	1000-4999 (2)	5000-9999 (3)	10,000-49,999 (4)	50,000 or more (5)
A. Municipal sewer system					
B. Underground well					
C. Septic tank					
D. Evaporation lagoon or pond					
E. Other, specify Leaching pools				X	

NEW K STATE DEPARTMENT OF ENVIRONMENTAL CONSE TION

APPLICATION FORM "C" FOR A STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) PERMIT INDUSTRIAL OR MINING

1. APPLICANT DATA

APPLICATION TYPE: ☒ New ☐ Renewal ☒ Modification

IF RENEWAL OR MODIFICATION, GIVE PREVIOUS APPLICATION NO., EFFECTIVE DATE, EXPIRATION DATE: No. NY-0076244 | Effective Date APRIL 17,1975 | Expiration Date APRIL 17,198

OWNER'S NAME (Corporate, Partnership or Individual): METALLURGICAL PROCESSING CORP.

TYPE OF OWNERSHIP: ☒ Corporate ☐ Individual ☐ Partnership ☐ Public

OWNER'S MAILING ADDRESS (Street, City, State, Zip Code): 180 MICHAEL DRIVE, SYOSSET,NY 11791

REFER ALL CORRESPONDENCE TO: (Name, Title and Address): WILLAIMS FOSTER, FINISHING SUPT.

TELEPHONE NO. (Include Area Code): 516 | 921-6800

FACILITY NAME: SAME

FACILITY LOCATION (Street or Road):

CITY, TOWN OR VILLAGE:

COUNTY: NASSAU

GIVE EXPLICIT DIRECTIONS TO LOCATION, If Necessary:

NATURE OF BUSINESS OR TYPE OF FACILITY: PLEAT TREATING & PLATING

NO. OF EMPLOYEES: 50

NO. OF SHIFTS: 3

2. IF ALL YOUR WASTE IS DISCHARGED TO A PUBLICLY OWNED WASTE TREATMENT FACILITY AND/OR A LICENSED WASTE SCAVENGER AND TO THE BEST OF YOUR KNOWLEDGE YOU ARE NOT REQUIRED TO OBTAIN AN SPDES PERMIT, COMPLETE THIS SECTION ONLY, SIGN APPLICATION AND RETURN.

AND/OR

NAME AND ADDRESS OF MUNICIPALITY RESPONSIBLE FOR RECEIVING WASTE | NAME AND ADDRESS OF LICENSED WASTE SCAVENGER

3. PRODUCTION DATA (Use additional forms, if necessary)

PRINCIPAL TYPES OF PROCESSING DONE AT THIS FACILITY

HEAT TREATING)
PLATING) JOB SHOP

PRINCIPAL PRODUCTS AND AMOUNTS PRODUCED PER TIME UNIT	RAW MATERIALS AND AMOUNTS CONSUMED PER TIME UNIT
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

4. DOES ANY OF YOUR DISCHARGES CONTAIN OR IS IT POSSIBLE FOR ANY DISCHARGE TO CONTAIN ONE OR MORE OF THE FOLLOWING SUBSTANCES ADDED AS A RESULT OF YOUR OPERATIONS, ACTIVITIES OR PROCESSES?

☐ Aluminum	☐ Arsenic	☐ Boron	☒ Chromium	☒ Flourides	☐ Lead	☒ Nickel	☐ Selenium	☒ Tin
☐ Ammonia	☐ Barium	☒ Cadmium	☒ Copper	☐ Gold	☐ Manganese	☐ Oil & Grease	☐ Silver	☒ Zinc
☐ Antimony	☐ Beryllium	☒ Chlorine	☒ Cyanide	☒ Iron	☐ Mercury	☐ Phenols	☒ Sulfides	

☐ Corrosion control chemicals (specify)

☐ Halogenated organics or halogenated hydrocarbons (e.g. chlorinated, flourinated or brominated) (specify)

☐ Herbicides or pesticides (specify)

☐ Radioactivity (specify)

☐ Slimicides, biocides or algaecides (specify)

☐ Substituted aromatics (e.g. derivatives of benzene, pyridene, biphenyl, napthalene, coal or petroleum tar, etc.) (specify)

☐ Surfactants (specify)

☐ None of the above

Specify the trade names and manufacturer of any chemicals used at this facility which are not listed above and whose specific constituents are not known to you.

Explanation of above: (Attach additional sheets, if necessary)

INDUSTRIAL CHEMICAL SURVEY
BUREAU OF WATER POLLUTIC CONTROL

Nassau County Department of Health
240 Old Country Road, Mineola, N.Y. 11501 Tel. 535-2404

Part I

Company Name: Metallurgical Processing Corp.		SIC (if known) Code:	
Company Mailing Address: 180 Michael Drive Syosset, New York			Zip: 11791
Plant Name (if different):	Contact Name: John Kelly		Tel. 516 921-6800
Plant Address: same	Village:	Water Distr.:	Code / Zip:
Principal Business of Plant: Heat Treating & Plating		No. Employees at this Facility: 50	

Part II

COMPLETE LIST OF CHEMICALS USED (See attached)

PART III - DISCHARGE INFORMATION

WATER

1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes ☒ No
   If yes, name of system:

2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? ☒ Yes ☐ No
   If yes, enter Permit No.
   N.Y. 0 0 7 6 2 4 4

3. Do you discharge liquid industrial wastes in any other manner? ☐ Yes ☒ No
   If yes, explain:

4. If any of the above are yes:
   a. Do you discharge process or chemical wastes, i.e., water used in manufacturing, including direct contact cooling water and scrubber water? ☐ Yes ☐ No
   b. Do you discharge non-contact cooling water? ☐ Yes ☐ No
   c. Do you discharge sanitary wastes? ☐ Yes ☐ No

AIR

1. Does your facility have sources of possible emissions to the atmosphere? ☐ Yes ☐ No
2. Enter location and facility code as shown on your Air Pollution Control Application for Permits & Certification (if applicable)
3. Heating System: ☐ None ☐ Boiler ☐ Space Heater | Type of Fuel: ☐ Electric ☐ Gas ☐ Oil | Incinerator: ☐ Yes ☒ No

SOLID & CONCENTRATED LIQUID WASTES

1. List name and address of firm (incl. yourself) removing wastes other than office and cafeteria refuse (industrial scavenger)

Name	Name
Thomas Patterson, Inc.	
Address	Address

2. List location(s) of landfills owned and used by your Facility

	Location	Active	Inactive
a.			
b.			

PEST

Does this facility manufacture, produce, formulate or repackage pesticides? ☐ Yes ☒ No

Signature (owner, partner, or officer): [signature]	Date: 8/30/77
Name (printed or typed): Louis Perlman	Title: President
Inspector's Name:	Date of Inspection:

EH 651 4/77

INDUSTRIAL CHEMICAL SURVEY-BUREAU OF WATER POLLUTION
Nassau County Department of Health

Name of Company: PROCESSING CORP

SIC Code | Water District | Code

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition of Chemical
SODIUM BISULFITE ALLIED CHEM		100		✓	WASTE - DISPOSAL	
CAUSTIC POTASH DIAMOND SHAMROCK		150		✓	" & Plating	
PITT CHLOR PPG		200		✓	WASTE - DISPOSAL	
CAUSTIC SODA		750	✓		" & PLATG	
SULPHURIC ACID		75	✓		" "	
OAKITE #164		250		✓	CLEANING	
ENBOND - 508		1000		✓	"	
ENTHOX - 980		75		✓	PLATING	
" 983		75		✓	"	
" 985 ENTHONE CHEM		75	✓		"	
ALUMON "D"		50	✓		"	
ENPLATE 415 B		150	✓		"	
" 415 C		150	✓		"	
ENSTRIP C		1200		✓	METAL STRIP	
ACTANE 70		100		✓	CLEANING	
AMMONIUM NITRATE		100		✓	PLATING	
NITRIC ACID		150	✓		"	
HYDROCHLORIC ACID		750	✓		"	
SODIUM CYANIDE		400		✓	"	
POTASSIUM CYANIDE		300		✓	"	
COPPER CYANIDE		300		✓	"	

RECOMMENDED ACTION

FOR OFFICE USE ONLY

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☐ SPDES Application
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ No Action
9 ☐ Other (specify)

EH 651B 3/77

INDUSTRIAL CHEMICAL SURVEY-BUREAU ... POLLUTION
Nassau County Department of Health

Name of Company: METALLURGICAL PROCESSING CORP | SIC Code | Water District

PART II - CHEMICALS USED (include gases and oils)

INSTRUCTIONS: Complete all information for those chemicals your facility has used, stored, distributed, or otherwise disposed of since January 1, 1977. Do not include chemicals used only in analytical laboratory work.

Name of Chemical/Trade Name, Supplier and Address	Code	Avg. Annual Usage	Gal	Lbs	Use of Chemical	Final Disposition of Chemical
GRINDING CAD 1500 WHITE & BAGLEY		100	✓		QUENCH	
V-LUBE GREASE		5	✓		LUBRICANT	
TURBINE OIL		10	✓		"	
MOTOR OIL		50	✓		TRUCKS	
K-3 NEUTRAL SALT		2000		✓	HEAT TREAT	
UCON QUENCHANT "A"		100	✓		QUENCH	
ACETYLENE		6 CYL			BRAZING	
OXYGEN		6 CYL			"	
PROPANE		220,000	✓		FUEL-HEAT	
AMMONIA		50,000	✓		ATMOSPHERE	
NITROGEN		1500 CCF			"	
ARGON		1000 CCF			"	
HYDROGEN		15,000 CCF			"	
BOILER TREATMENT CAD C		1000		✓	BOILER	
METHYL CHLORIDE		30 CYL			SALT BATH	
NITRATE NITRATE SALT		2000		✓	HEAT TREAT	

FOR OFFICE USE ONLY

RECOMMENDED ACTION

2 ☐ Immediate Abatement
3 ☐ Sample
4 ☐ SPDES Application
5 ☐ Refer To: ____________
6 ☐ Re-inspection
7 ☐ No Action
9 ☐ Other (specify)

EH 651B 3/77

Nassau Co. Department of Health

84

New York State Department of Environmental Conservation
Division of Pure Waters
Albany, N Y 12201

Henry L. Diamond
Commissioner

September 15, 1971

Mr. J. J. Martin, Jr., P.E.
60 Connoily Parkway
Hamden, Connecticut 06514

Re: Metallurgical Processing Corp.
Oyster Bay (T), Nassau County

Dear Mr. Martin:

Your final report has been received from the Nassau County Department of Health with the notation that the facility has been constructed and is in operation at the present time. This is not in accordance with the State law and permits for construction must be referred to this office.

In reviewing the report and plans, some of the data is either missing or needs clarification.

1. Manufacturing details (raw materials, processes products) have not been given. These must be defined sufficiently to judge the probable wastes.

2. In the various cleaning processes the solutions and contamination involved have not been given. Any oils must be treated and removed if State specifications are exceeded. This is not shown.

3. The passivation solution is not described.

4. There are no analyses of present effluents given.

5. Your treatment for Cadmium is not completely defined. It also is vague and contradictory. On the print sodium sulfide is shown. In the write-up, it is described as sodium sulfate (pg.3). It is listed as a catalyst, which is probably not its function. Clarification is required.

6. There are no instructions given for Cadmium treatment.

7. The stripping aid is not characterized.

8. The prints are not clear on the curbing detail. If curbs around acid tanks do not separate from spills contained by the curbing around the tanks containing cyanide solutions, possibility of acidification of spills or leaks containing cyanide present a problem of possible generation of lethal cyanide gases. This point needs clarifying.

9. Automatic high level alarms are not shown, but there are provisions for emergency overflows from treatment Tank "A" (cyanide) to clarifier and from Tank "B" (chromium) to the rinse water neutralization tank. This is not satisfactory as it permits untreated material to flow to discharge with no treatment, but neutralization. If high level alarms and solenoid water or flow shut-off valves in case of power failure are not sufficient, then emergency reservoirs should be provided from which material can be returned through proper treatment equipment.

10. Solenoid valves on rinse water and in the case of gravity flows on treatment reservoirs should be provided to shut-off automatically in case of power failure. Such devices go a long way in the prevention of overflows.

11. From the prints, it could not be determined if duplicate pumps were provided in critical areas such as circulation through treatment reservoirs. Without them, the temptation to operate without proper treatment is too great in case of pump breakdown.

12. In some of the treatment tanks, acid treatment may have copper if parts treated are of copper or brass. If this is the case, then cuprous copper could be precipitated in the acid neutralization as well as in the alkaline cyanide treatment. This would give the undesirable gelatinous precipitate described, giving clarification problems and plugging of the leaching tanks. Further definition is required as well as a separate copper treatment system if needed.

13. There is no plot plan indicating location and distance to any private wells in the vicinity.

14. Basis of design for leaching pits should be given.

Any plans to be approved, must be sufficiently complete and detailed so that these points can be ascertained. There must be enough description of the system (source and character of waste) to assure that controls proposed are appropriate.

The high zinc content reported by Nassau County is also a matter of concern. If the passivation is zinc phosphate, then analyses for zinc and phosphates should be given.

Very truly yours,

Thomas E. Quinn, P.E., Chief
Industrial Facility Section

TEQ/NAC:sp

cc: Ronkonkoma Region
cc: Metallurgical Processing Corp.

Lancy (L)

LABORATORIES, INC.

METAL FINISHING AND WASTE TREATMENT ENGINEERS

REPLY TO:
JOHN J. MARTIN JR., VICE PRESIDENT
60 CONNOLLY PARKWAY
HAMDEN, CONN. 06514
PHONE: AREA 203-248-2550
203-248-3353

Ynd 7/3/69

P. O. BOX 98, ZELIENOPLE, PA. -- 16063
PHONE: AREA 412 452-9360

July 2, 1969

Department of Health
Nassau County
Mineola, New York

Attention: Mr. Welsch

Ref: Metallurgical Processing Corporation

Dear Mr. Welsch:

On May 15th, and on June 2nd, we wrote to you concerning our activities at the subject account. We recognize that we are to resubmit plans and specifications for your review as soon as we feel confident that we have the effluent within the standards of Nassau County.

Our laboratory received samples taken on May 28th and another sample, both of which were received at Zelienople on June 6th. In both samples, which was the effluent from the settling tank, the pH was 9.75/9.80, suspended solids 11.42/9.67 ppm, cadmium, nickel, copper, cyanide, none detected.

A sample dated June 11th, indicated pH 9.95, cadmium .02, nickel none, copper .28, CN .4, suspended solids 17.1. We do not understand the cyanide indication and we are advised that the sample, analyzed by your department, indicated 1.2 cadmium. We are naturally disappointed in this cyanide trace, and also in the discrepancy between your analysis and ours.

Our chief chemist, Mr. Fred Stevens, will be at Metallurgical Processing on July 8th & 9th, and we would appreciate a meeting of you and your chemist with him either at Metallurgical Processing or at your office during this period. We would hope to resolve the discrepancies in analysis that seem to plague us and to establish if any additional work is required to insure that the effluent meets your standards.

As soon as we can establish a firm basis we plan to resubmit the plans and reports for your review. We appreciate your continued cooperation, and hope that with you we can provide a suitable effluent from this waste treatment system.

Yours very truly,

LANCY LABORATORIES, INC.

John J. Martin

John J. Martin, Jr. P.E.
Vice President

JJM:jdl
c.c. Mr. Peerlman
Metallurgical Processing Corp.
Mr. G. Hill
Fisher & Porter

METALLURGICAL PROCESSING CORP. 180 MICHAEL DRIVE • SYOSSET L. I., NEW YORK 11791 • WALNUT 1-6800

MPC

April 17, 1969

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Attention: Mr. John F. Welsch, Supervisor Industrial Waste, Bureau of Water Pollution Control

Gentlemen:

We are herewith submitting a report regarding the progress toward the successful operation of our waste treatment system.

On 28 March past, we received the enclosed letter from the Fischer & Porter Company summarizing their findings to that date. We have taken the following action relative to their recommendations:

1. We have eliminated the described nitric acid tanks from our process.

2. We have arranged to have our settling tank drained and cleaned.

As a result of these operations, we feel confident that we can meet the proper standards of operation. We intend to sample our effluent on April 23rd and send same to Lancy laboratories. We will withdraw a quantity sufficient to satisfy Lancy Laboratories. We will, at the same time, withdraw an additional sample for your use - if you so choose. We realize that official samples must be taken by your people but it is sometimes difficult to coordinate our efforts and Lancy Labs requires their sample by the end of next week.

If you cannot use the sample withdrawn by us, we respectfully request that you make arrangements for your own sampling on April 23rd or shortly thereafter.

We are making every effort to achieve the required effluent composition. Our consultants feel quite confident in their present endeavors. We welcome any suggestions you might have for the improvement of our process.

Very truly yours,

METALLURGICAL PROCESSING CORP.

Burton Z. Chertok
Vice President

BZC:pas

Encosure

Lancy LL

LABORATORIES, INC.

METAL FINISHING AND WASTE TREATMENT ENGINEERS

LESLIE E. LANCY, PH.D., PRESIDENT
FRANK J. KENNEDY, VICE PRESIDENT
ROBERT L. RICE, P.E., VICE PRESIDENT

P. O. BOX 98, ZELIENOPLE, PA. 16063
PHONE: AREA CODE 412-452-9360

October 15, 1968

Metallurgical Processing Corp.
180 Michael Drive
Syosset, New York 11791

Attention: Mr. B. Z. Chertok

Dear Mr. Chertok:

Attached is our analysis report on your waste effluent taken October 8th and received by us October 10th. We have analyzed for both soluble and total metals in the sample and pH.

The sample is quite cloudy and slow settling. As we have discussed with you on the telephone, this can be caused by wet tumbling waste water being discharged to your final settling tank.

Our Mr. John Martin will be advising you on our recommendations for improving your waste treatment facilities to meet the Health Department requirements.

Very truly yours,

LANCY LABORATORIES, INC.

Fred Stevens

Fred Stevens,
Vice President

FS:vjv

cc: Mr. Welsch, Senior Sanitarian
Mr. John J. Martin, Jr.

Lancy LABORATORIES, INC.

Metallurgical Processing
Syosset, New York

Oct. 14, 1968

Effluent Rec. 10/11/68 (Sampled 10/8/68)

pH	=	9.0
Hex. Chrome as CrO_3	=	0.08 ppm
Total Chrome as CrO_3	=	0.15 ppm
Soluble Copper	=	0.01 ppm
Total Copper	=	0.11 ppm
Soluble Cadmium	=	0.94 ppm
Total Cadmium	=	2.14 ppm
Soluble Nickel	=	2.75 ppm
Total Nickel	=	18.0 ppm

SJ ~~SQ~~ 11/20/67
JW 11/16/67

November 16, 1967

Metallurgical Processing Company
180 Michael Drive
Syosset, New York

Att: Mr. Burton Z. Chertok

Re: Industrial Waste Treatment and Disposal System.

Gentlemen:

This office has reviewed the plans and reports submitted on your behalf by Mr. J. Martin, P.E. Plans have been reviewed and a conference was held on November 2, 1967 at which Mr. Martin was present together with representatives of this office. Further action on your plans and application for permit must await receipt of further information and or comments on the following:

1. The leaching system as shown on drawing MPC-01 cannot be approved by this office because of non-conformance with our standards. We understand from Mr. Martin that the system has been installed and upon request by your firm for approval of an "as built" leaching system we will consider same for a conditional approval. The areas of particular concern are;

   a) The soils evaluation and leaching application of 8 gpd/sq.ft. which is stated in your letter of October 30, 1967.

   b) The distance between the pools of 20' o-c does not conform with our requirements.

   c) According to statements in your letter of October 30, 1967 the maximum number of pools that can be placed in this area is five (5). This raises serious questions as to the adequacy of the system and the availability of room for future expansion of the leaching system should it become necessary.

2. Additional information is to be supplied to this office by Mr. Martin relative to the removal of cadmium and zinc from your waste effluent. Operating data from plants now treating waste waters for the removal of these metals should be submitted. ✓

3. Additional information is to be furnished on the chlorination equipment including the storage facilities of the one (1) ton containers and details on the chlorinating room itself. You are advised that the approval of the gas chlorination facilities as outlined to us by Mr. Martin may not conform with future departmental policy on storage and use of one (1) ton gas cylinders. The current practice in the chlorination field where large containers of chlorine gas are used, is to change to the liquid form to eliminate a hazardous situation to the surrounding community. NG

4. Mr. Martin has been informed of the effluent characteristics that must be met by your discharge. The table of expected chemical concentrations on page 2 of your report is to be revised in accordance with the information supplied to Mr. Martin.

The writer apologizes for the length of this letter and realizes that there may be questions concerning the statements herein. Please feel free to contact this office should the need arise. Further action on your plans will await receipt of the information requested.

Very truly yours,
For
Stanley Juczak, Jr., P.E.
Sr. Public Health Engineer
Water Pollution Control Section

JFW

By
John F. Welsch
Sr. Sanitarian

JFW:sk
cc: Mr. John Martin

30 October 1967

Lancey Laboratories, Inc.
60 Connolly Parkway
Hamden, Connecticut

Attention: Mr. John Martin

Gentlemen;

Per your request, we are herein submitting the background and design criteria for the leaching system shown on drawing MPC-G1.

Prior to the time of your involvement in this matter, the ground which would contain the leaching pools was in a partially excavated state due to other construction. Our architect, Mr. Robert Nelson, of Risso Nelson and Pope, from Huntington, New York, was consulted as to the necessary requirements for leaching systems. He contacted the Department of Health and was told that for pure water, containing no solids etc., a formula of eight (8) gallons per day per square foot of side wall area was applicable.

We then contacted Mr. Greer Hill of the Fischer and Porter Co., who were liscensees of your company's patent rights and engaged in the design of the entire waste treatment system. He stated that with the installation of the system, as shown, with the necessary waste treatment reservoirs and chemical additives together with the 30,000 gallon capacity settling tank in series would give use to a drinking water equivalent exhausting to the leaching pools. Since the full plating plant will not operate on a 24 hour basis the 30,000 gallon output will have ample opportunity to settle any remaining solids in the tank. The clean effluent concept seems reasonable providing proper and adequate chemical treatment had previously taken place.

Metallurgical Processing Corp.

The maximum numbers of pools that could be placed in the area without interferance with existing footings etc., was 5. The ground elevation in the area was 198 feet. Due to the fact that the waste treatment effluent exhausts from the building at an invert of 190.1, the entrance to the leaching system had to be even lower. The actual pool begins approximatly 10 feet below the ground surface.

In the case of the Northernmost three (3) pools, we were successful in gaining a full 28 feet of useful depth (7 sections) which bottom out at almost 40 feet below the ground surface. The remaining two (2) pools are 24 feet deep due to difficulties encountered during the excavation. In all instances, man ways have been provided so that inspection can be made of each pool.

Our actual total wall footage, stemming from 132 running feet of 10 foot diameter sections is 4140 square feet. Since our water flow is 30,000 gallons per day, we have a wall loading of <u>7.25 gallons per square foot per day.</u> A calculation stemming from 120 running feet of 10 foot diameter sections yields a wall loading of 8 gallons per square foot per day. This 120 foot figure based on five (5) pools at 24 feet each appeared on the Risso, Nelson & Pope drawing as minimally acceptable. We exceeded this figure wherever physically possible.

The piping to one pool and subsequent distribution was suggested to us as good practice both for dispersal of liquids and protection against possible connecting pipe failure. This, too, transpired after consultation with the architect.

We trust that the aforegoing information answers your questions and that it meets with the approval of all cognizant parties.

Very truly yours,
Metallurgical Processing Corp.

Burton Z. Chertok

Burton Z. Chertok
Vice President, Engineering

N. YORK STATE DEPARTMENT OF HEAL...
DIVISION OF ENVIRONMENTAL HEALTH SERVICES
BUREAU OF WATER RESOURCE SERVICES

APPLICATION for Approval of Plans and or for Permit to Construct and operate Waste Treatment Works and to Discharge Wastes into Waters of the State

1. Name of Board, Individual, Corporation or Office making application
Metallurgical Processing Corp., Inc.

2. City, Village, Sewer District or establishment served by proposed works
Corporations Plant located at 180 Michael Drive, Syosset, N.Y.

3. Date of Application
September 13, 1967

4. County
Nassau

5. Check type of works
- [ ] Municipal
- [ ] Private (individual)
- [ ] Private (other)
- [ ] Institutional
- [x] Industrial Waste

6. Check type of project
- [ ] Sewers
- [ ] Pumping Station
- [x] Treatment Works
- [ ] Additions or Alterations

7. Check type of discharge
- [ ] Surface Water
- [x] Ground Water

8. Name of receiving watercourse, if surface waters: If subsurface, name of watercourse to which ground water is tributary
Ground Water

9. Name of City, Village or Town in which point of discharge is located
Syosset, N. Y.

10. Name and address of designing engineer
John Martin
60 Connolly Parkway
Hamden, Conn.

11. Engineer's N.Y. State License Number
33734

Engineer's telephone number
203-248-2550

12. For existing treatment works, give:

Present Average Daily Flow	Design Average Daily Flow
None	----

13. Number of persons to be served

Present	Future
-----	---- Year: A.D.

14. Water consumption in gallons per day

Present	Future
50,000 GPD (95% for cooling H_2O)	80,000 GPD Year: 1970 A.D.

15. For new works, give estimated sewage or waste flow in gallons per day

Present	Future
0 Proposed	30,000 GPD Year: 1970 A.D.

16. State how storm water and cooling water is to be disposed of
Four existing leaching pools

17. Source of water supply (If private well; give location; type; depth and character of soil)
Jericho Water District

18. Give street location of proposed works or existing works
180 Michael Drive
Syosset, N. Y.

19. Give number, character and distance of any buildings which may be affected by the proposed treatment works
Proposed plant is located in an Industrial Park. Nearest adjacent industrial building is 100 feet away. No known private wells in this area.

Additional information must be submitted for private and institutional systems.

20. Indicate on U.S.G.S. Topographic Map exact location of sewage treatment works and adjacent buildings. Show location of all wells or other sources of water supply within 200' of the proposed works. Give description of these sources and character of soil.
See 19.

21. State depth below existing ground surface at which ground water is encountered
100 feet

22. Describe soil at site of proposed works. Give design basis and observed soil percolation rate data (use additional sheet, if necessary)
Sand and gravel.

ENGINEERING REPORT

ON

WASTE TREATMENT FACILITY

FOR

METALLURGICAL PROCESSING CORPORATION

SYOSSET, LONG ISLAND, NEW YORK

Prepared by: John J. Martin, Jr. P.E.
Vice President
60 Connolly Parkway
Hamden, Connecticut

Date: August 22, 1967

Revision 1., October 1 , 1967

STATE OF NEW YORK
J. J. MARTIN JR.
NO. 33734
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

STATE OF NEW YORK
I. J. MARTIN JR.
NO. 33724
PROFESSIONAL ENGINEER

GENERAL

Metallurgical Processing Corporation, located in Syosset, Long Island, proposes to install a plating and metal finishing department incorporating a waste treatment facility which will produce an effluent having a quality to meet the standards of State of New York Department of Health, where discharge will be to underground leaching pools.

The various metal finishing operations involved include cleaning, acid dipping, plating, stripping, and the applicatin of conversion coatings. Process water which is used in the metal finishing operations, without proper treatment, would produce an effluent containing cyanide, cadmium, zinc, copper, nickel and both trivalent and hexavalent chromium.

The proposed Waste Treatment System discussed herein will provide for two types discharge:

a. Completely treated waters discharging to the leaching pools ~~(diffusion wells~~).

b. Inert sludges from the various treatment processes which will be periodically discharged to a chemical scavenger service truck.

ANTICIPATED ANALYSIS OF EFFLUENT FROM SETTLING BASIN

Cyanide	less than 0.4 PPM
Chromium, hexavalent	less than 0.1 PPM
Chromium, trivalent	less than 0.5 PPM
Cadmium	less than 0.02 PPM
Copper	less than 0.4 PPM
Zinc	less than 0.5 PPM
Oil	less than 10 PPM
Suspended solids	Approx. 20 PPM
pH	6.5 to 8.5
Temperature	Ambient
Flowrate	Approx. 65 GPM

Metallics are in soluble ppm.

STATE OF NEW YORK
J. J. MARTIN, JR.
NO. 35734
PROFESSIONAL ENGINEER

2/4/71

TREATMENT

It is proposed to use an integrated waste treatment system for containment and elimination of toxics in the rinse waters and batch treatment for spent processing solutions. The treatment methods are as follows:

COPPER, CADMIUM AND CYANIDE

These would be introduced into the rinse water as drag-out on the work and carriers from the processing solutions. This will be eliminated by using recirculated chemical rinse station connected to a reservoir tank. This is the "Integrated Cyanide Treatment System", appended.

CHROMIUM

Hexavalent chromium in the rinse waters (from dragout on the work and work carriers) will be eliminated by using a chemical rinse after chromium solutions. This is the "Integrated Chromium II Treatment System", appended.

ACIDS AND ALKALIES

All spent acids and alkalies are collected in acid and alkali collecting tanks respectively and treated as batchs.

Spent cyanide solutions are collected in the alkali collecting tank "D" and treated as a batch in the alkali collecting tank "D" with sodium hydroxide and sodium hypochlorite.

Spent chromate solutions are collected in the acid collecting tank "A" and treated as a batch with sodium bisulfite and then sodium hydroxide.

Floor spillage is collected in the alkali collecting tank "D" and treated with the batch wastes.

This is the Acid-Alkali Neutralization-D, appended. After treatment, the batchs are transfered to tank "E", which could also be used for batch treatment, for settling and then decanting the supernatant to the rinse waters and, eventually, the sludges to a sludge holding tank for periodic scavenger disposal.

RINSE WATERS

All rinse waters are collected and led to a flash mixing sump where sodium hydroxide is automatically added with a pH Indicating-Controlling-Recording instrument which adjusts the pH to 6.5 - 8.5. After adjustment the rinse waters go to a large retention and clarifying tank and thence to leaching fields. A proportioning pump adds 2.[illegible] gph of a stock solution of 0.6 oz/gal. of ferric sulfate and 1 oz/gal of sodium sulfate as a catalyst for the further precipitation of traces of soluble cadmium.

TREATMENT cont'd

OTHER CONSIDERATIONS

1. Sludge Disposal

Periodic discharges of all spent treatment solutions and sludge bearing solutions will be taken by a chemical scavenger service. For this purpose, the services of Chemical Waste Disposal have been tentatively secured. They are located at P.O. Box 232, East Elmburst, New York. All waste materials discharged by M.P.C. will be brought to Chemical Waste Disposal's New York plant for further treatment as may be required. All liabilities will be assumed by Chemical Waste Disposal after material leaves M.P.C. plant. The physical location of ultimate disposal is as yet undetermined.

2. Safety Operating Procedures

Fresh water additions to tanks containing toxic materials such as acid, alkali, plating solutions and bright dip solutions shall be made only by means of spring-loaded, hand-operated valve on hoses so that constant attendance will be insured and that accident over-flow of process tanks will be eliminated.

As far as automatic control instrumentation is concerned, due to the closed loop nature of the integrated treatment systems for cyanide and chromium, the need for such automatic controls is eliminated. One of the basic features of the integrated treatment system is the fact that proper operation of this closed loop type of system insures the continual presence of excess treatment chemicals. For this reason, it is known from many years of past experience that periodic checks on solution pH, residual chlorine, etc., are entirely adequate for the proper maintenance of controlled conditions. The same basic considerations also apply to the possible requirements for automatic control instrumentation on the batch treatment operations described herein.

Automatic control instrumentation is provided, however, for the measurement and control of the effluent rinse water pH. In that this is a continuous flow through part of the treatment system, it is essential that the effluent rinse water pH be controlled automatically. To this end, a pH recorder equipped with electrical contacts, as already previously described, will be utilized for the operation of the chemical feed pumps required for the neutralization of effluent rinse water. Additionally, as previously described, the same pH measuring instrument will provide for high and low pH conditions.

STATE OF NEW YORK J. J. MARTIN, P.E. 35735 PROFESSIONAL ENGINEER

Safety Operating Procedures (cont'd)

An instrument panel board, which will contain the pH measuring equipment and the pH recorder with its various alarm switches, will also contain an alarm annunciator for visual and audible readout of high and low effluent rinse water pH conditions, as well as a low chlorine gas pressure condition which will indicate a shortage of chlorine gas in the cyanide destruction system. All of these alarms will serve to notify the operator of the waste treatment system that a condition must be corrected in order for the system to return to normal and these specific alarm condition to shut off.

3. Records and Reports

It is essential for proper operation of the waste treatment system that adequate records be kept of the chemical control of the integrated treatment solutions, as well as a record of the treatment of batch dumps. In this manner, repetitious operations can be simplified by comparing daily analyses with the history of operation. Keeping a record will also simplify supervision of the operation.

It is understood that periodic reports of the waste treatment system operation will be required by the state of New York Department of Health for their review and analysis. To this end, the appended sample records form under Appendix D is submitted as a suggested means of keeping satisfactory records. Additionally, daily chart records of the effluent rinse water pH will be available for review.

Acid-Alkali Neutralization - D

All spent acids are drained to an acid collecting tank where they are treated and neutralized as a batch. The capacity of the tank is such that once, or twice, per week a batch will require treatment.

When the tank is about 3/4 full the batch is tested for chromium as described under WCR-ST appended and pH with test paper.

A. If no chromium is present add Caustic (or spent alkali) to increase pH to a range of 6 to 8. The sludge pump is used to mix the solution. After pH adjustment the batch can be pumped to the sludge bed.

B. If chromium is present and pH is above 4, add cuastic until pH 6 is reached and add sodium hydrosulfite until an excess of reducing agent is reached as determined by WCR-HST. The batch can then be pumped to the sludge bed.

C. If chromium is present and pH is below 4, add sulfuric acid until pH range is 2 to 3. Then add sodium bisulfite until an excess is reached as per WCR-HST, appended. At this point add cuastic to adjust pH to range 6 to 8 and pump to sludge bed.

50% liquid caustic is purchased in 55. gal. drums and transferred to the caustic storage tank. After pumping out a drum of caustic, the drum is filled with water and the contents also pumped to the storage tank. Thus, we have about a 25% caustic solution.

Spent alkalies, such as cleaners, are drained to an alkali collecting tank. This tank also collects any floor spills and is arranged so that there is always a 4" blanket of spent alkali in the botton. When the tank is about 3/4 full the batch is tested for cyanide and chromium as per test procedures WCN-ST and WCR-ST appended.

A. If cyanide is present, raise the pH to about 11 with caustic and add sodium hypochlorite. Recirculate with the sludge pump and continue with additions until spot test shows no cyanide.

B. If chromium is present, adjust pH to 6. - 9.0 and add sodium hydrosulfite until an excess of reducing agent is present as indicated by WCR-HST, appended, or chromium is eliminated as indicated by WCR-ST, appended.

C. Upon elimination of cyanide and chromium, the batch is pumped to tank F, for settling. The supernatant is pumped to the rinse waters and eventually the sludges are transferred to a collecting tank for periodic pickup by a scavenger truck.

APPENDIX

INTEGRATED CYANIDE TREATMENT SYSTEM (CHLORINE)

INTRODUCTION

The Integrated Cyanide Treatment System is of the alkaline chlorination type designed to completely oxidize highly toxic cyanide into harmless carbon dioxide and nitrogen.

The reaction proceeds in two stages. The first stage, which takes place at an extremely rapid rate under the conditions specified, yields the considerably less toxic cyanate along with insoluble metal oxides and hydroxides. The second stage, which takes place at a lesser rate, yields carbon dioxide and nitrogen, the products of the oxidation of cyanate.

FUNCTIONAL DESCRIPTION

The integrated system consists of treatment wash tanks located in the plating lines; and a treatment solution reservoir, a solution feed, vacuum-type chlorinator, a caustic feed pump, and treatmant solution pumps, all external to, but integrated with the plating lines.

The arrangement of the equipment is such as to provide the addition of treatment chemicals to the treatment solution; and to provide recirculation of the treatment solution in this order: through the reservoir, the ejector of the solution feed, vacuum-type chlorinator, and the treatment wash tanks, and back to the reservoir.

The treatment solution reservoir is sized to serve three important functions. The first function is to serve as the all-important buffering component in the system to neutralize the shock loading caused by sudden and irregular changes in the quantity of plating solution drag-out treated. The second function is to serve as a clarifier, dettling out the insoluble metal oxides and hydroxides formed in the first stage of the reaction. The third function is to serve as a retention tank providing adequate time for the second stage of the reaction, the oxidation of the cyanate to carbon dioxide and nitrogen, to take place.

To provide satisfactory treatment, the treatment solution for the system used after cyanide plating must be maintained at a strength of 800-1,500 ppm available chlorine and at a pH of 11.5-12.8.

In operation, the clear supernatant from the treatment solution reservoir is passed (via the ejector of the solution feed, vacuum-type chlorinator) to the treatment wash tanks where it is distributed in excessive quantities over the surface of the

STATE OF NEW YORK
PROFESSIONAL ENGINEER

work pieces. Upon contact, all cyanide in the plating solution drag-out is immediately oxidized to cyanate and the products of this stage of the reaction are washed from the surface of the work pieces by the excess treatment solution.

Thus, the work pieces leave the treatment wash tanks wetted only with harmless treatment solution which is removed in subsequent rinse tanks and discharged with other non-toxic rinse waters to a flash neutralization tank.

The partially spent treatment solution is returned from the treatment wash tanks to the treatment solution reservoir where the insoluble metal oxides and hydroxides settle out and the second stage of the reaction, the oxidation to carbon dioxide and nitrogen, occurs.

Prior to return to the treatment wash tanks, the alkalinity and available chlorine strength of the treatment solution is replenished by the addition of caustic (sodium hydroxide) and chlorine. Caustic addition is by means of a manually-set, positive displacement metering pump. Chlorine addition is by means of a manually-set, solution-feed, vacuum-type chlorinator, operating when the treatment solution is directed through its ejector.

In a system used for treatment after copper plating, it is imperative that the chlorine concentration in the treatment solution does not under any circumstances fall below the level of 500 ppm excess chlorine. At a lower chlorine concentration, the copper precipitates in the form of cuprous salts and the treatment solution takes on a blue color instead of the normal grayish-black which is the color of the desired cupric oxide precipitate. If the blue copper precipitates (copper hydroxides or copper carbonates) are present, these tend to form a gelatinous film over the copper plated surface and will impair the adhesion of the subsequent nickel plate.

To insure that the available free chlorine is more than 500 ppm at the surface of the plated work which enters the treatment solution, and to insure that it will not be reduced below this figure by the chlorine demand of the plating solution film, we recommend that the free chlorine level not be permitted to drop below 600 ppm in the body of the treatment solution.

To avoid the slight darkening of the copper and/or silver plated surface which occurs when the chlorine concentration is above 600 ppm, we have developed Inhibitor LD which we recommend as an addition to the cyanide treatment solution. The use of the inhibitor will permit a much wider range of chlorine concentrations and will thus avoid the need for close control.

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FUNCTIONAL DESCRIPTION (cont'd)

With the exception of drag-out losses, the inhibitor is not consumed during normal operation of the treatment system. If, however, plating solution is dragged into the treatment solution when the chlorine concentration is below 300 to 500 ppm and the blue copper precipitates begin to form, the inhibitor will be immediately lost.

CHEMISTRY OF THE SYSTEM

The oxidation of cyanide complexes through chlorination has been thoroughly explored. The chemical reaction may be assumed to take place in two steps.

The first step:

$$NaCN + 2NaOH + Cl_2 \rightarrow NaCNO + 2NaCl + H_2O$$

is a very rapid reaction converting the cyanides into cyanates, compounds of considerably lesser toxicity. At the recommended pH and high excess of chlorine, the above reaction is almost instantaneous.

The second reaction:

$$2NaCNO + 4NaOH + 3Cl_2 \rightarrow 2CO_2\uparrow + 6NaCl + N_2\uparrow + 2H_2O$$

proceeds at a somewhat slower rate. At the stated pH and excess chlorine, and at room temperature, the cyanates are broken down into nitrogen and carbon dioxide gases in approximately two to four hours. The relatively high chlorine excess accelerates the break-down of cyanates and allows the quantitative precipitation of the non-toxic, heavy metal salts.

OPERATION

1. General

Chlorine in contact with cyanide under the conditions of depressed pH gives rise to the formation of toxic hydrogen cyanide and/or cyanogen chloride gases. THEREFORE, NEVER, UNDER ANY CIRCUMSTANCES, ALLOW THE PH OF THE TREATMENT SOLUTION TO FALL BELOW 9.5.

2. Solution Make-up

To prevent formation of the blue copper precipitates which are mentioned under Functional Description when making up a new treatment solution, it is necessary to start with a reservoir containing only fresh water or water containing old treatment solution. An attempt to make up the solution from water containing copper ions will result in the formation of the blue precipitates. These are extremely difficult to convert to the proper, black form and should be pumped to the sludge bed before any attempt is made to use the treatment solution. The solution should be made up by starting with fresh water and adding caustic soda and chlorine until the specified ranges for pH and chlorine concentration are reached. When copper ions are then dragged into the solution, they will immediately precipitate as the proper, black cupric oxide form. Only after the pH and chlorine concentration are within the proper ranges, and all blue precipitate has been eliminated, should the Inhibitor LD be added. After the addition of the inhibitor, the solution may be put into use.

3. Chemical Feed Rates

a. Chlorine Feed Rate

Chlorine feed rate must be adjusted to provide approximately eight (8) pounds of chlorine per pound of cyanide compound dragged out to maintain 800-1,500 ppm available chlorine in the solution.

b. Caustic Feed Rate

Caustic (sodium hydroxide) feed rate must be adjusted to provide approximately one (1) pound of caustic per pound of chlorine to maintain the pH of the treatment solution between 11.5 and 12.8.

c. Inhibitor LD

Inhibitor LD is added at the rate of one gallon per each 1,000 gallons of treatment solutinn when making up a new treatment solution. The drag-out losses are made up by adding approximately one-half pint of Inhibitor LD per 1,000 gallons each week.

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Operation cont'd

4. Chemical Control

a. Treatment Solution

The following chemical tests are performed on samples of the treatment solution taken from the influent to the treatment wash tanks before the solution comes in contact with the work pieces.

i. pH

Check the pH at least once every four hours using narrow range pH test paper. A pH meter or other pH measuring device may be used if desired.

ii. Available Chlorine

Check the available chlorine concentration at least once every two hours using the Indicator Paper Test described in Test Procedure WCN-CIP appended, and at least once every day using a chlorine comparator such as a Taylor Chlorine Slide Colorimeter, or by analysis as described in Test Procedure WCN-CTSI. As mentioned earlier, it is imperative that the chlorine concentration be maintained at all times at 800 ppm or higher to avoid loss of the inhibitor.

b. Effluent Rinse Water

Check for cyanide in the effluent from the rinse tanks immediately following the treatment wash tanks once every day using the spot test in Test Procedure WCN-ST, appended. This check is necessary to make certain that no cyanide is being dragged out of the treatment wash tanks.

5. Dumping

Generally, the treatment solution should be dumped at 2 - 3 month intervals; however, the exact frequency of dumping would be dependent on the quantity of plating solution drag-out treated. When it is deemed necessary to dump the spent treatment solution, the excess available chlorine is reduced by manual addition of sodium metabisulfite as controlled by Test Procedure WCN-CIP. The amount required will be approximately thirteen pounds $Na_2S_2O_5$ per 1,000 ppm available chlorine per 1,000 gallons. When the chlorine test paper shows a negative test, the solution may be dumped to the sludge beds. When an Integrated Chrome I Treatment Solution is available, it can be used in place of metabisulfite.

Test Procedures:

WCN-CIP, WCN-CTSI, WCN-ST, WCN-pH

Rev. A. 11/21/68

CHROMIUM TREATMENT II

The aim of this treatment is to provide a reducing potential for hexavalent chromium and precipitate trivalent chromium.

Hexavalent chromium compounds if dragged in are reduced by the sodium hydrosulfite ($Na_2S_2O_4$) dissolved in the treatment solution. An excess of reducing chemical is maintained in this solution and a concentration of 50-100 ppm sodium hydrosulfite is proposed.

The chromium which has been reduced to the trivalent state is precipitated as an insoluble hydroxide at the pH maintained between 7.8-8.5. For the maintenance of the alkaline pH, soda ash is used.

The treatment chemicals, sodium hydrosulfite and soda ash, are dissolved in a common storage tank and fed into the treatment reservoir tank through a variable rate feed positive displacement pump. The consumption of the various chemicals will depend on the dragout rate from the treatment solution and only experience will develop the proper balance in makeup for the treatment chemicals.

Chemical Control

Tentatively, it is proposed that the sodium hydrosulfite and soda ash chemical solution should be made up in a concentration of 50-60 g/l (6-8 oz/gal.) soda ash, 15 g/l, (2-3 oz/gal.) sodium hydrosulfite. As the sodium hydrosulfite loses its strength, it is best to make up a sufficient quantity only for one day and make a fresh solution daily. If soda ash solution remains from the previous day, replenish the sodium hydrosulfite content by assuming that 30% was lost in 24 hrs.

A. Check for the sodium hydrosulfite concentration in the treatment solution twice daily by using the WCR-HIP Indicator Paper Test, appended. The coloration should be bleached from the paper in approximately 20-30 seconds.

   In the first few weeks of operation, the sodium hydrosulfite spot test should also be used to become familiar with the solution test procedure WCR-HST, as appended.

B. The pH should be maintained using Narrow Range pH papers.

   After a few weeks of operation, the proper balance of the treatment solution will be evident from the color itself which should be bluish-white without any yellow coloration.

C. Effluent Rinse Water

Check for hexavalent chromium in the effluent from the rinse tank immediately following the treatment wash tank once every day using the Spot Test described in Test Procedure WCR-ST, appended.

Dumping

The entire treatment solution, or part of it, is dumped periodically approximately once every 2-4 weeks depending upon the quantity of dragout treated. The sludge level in the treatment reservoir should not be allowed to become higher than 10-15 centimeters, (4"-6").

The Chromium Treatment II solution to be dumped may be dumped directly to a sludge bed.

Test Procedures:

WCR-HIP, WCR-HST, WCR-ST.

TEST PROCEDURE SERIES

TEST: CHROMIC ACID SPOT TEST — TEST PROCEDURE WCP-ST

SPECIFICATIONS:

Type------------------------------------Qualitative
Limit of Identification-----------------0.5 ppm CrO_3
Color-----------------------------------Pink-Violet

Reagents:

1. 1% Diphenylcarbazide Indicator (Dissolve contents (0.25 g.) of one ampoule of Diphenylcarbazide in 25 ml C.P. Acetone).*

2. Acetic Acid Buffer (M-39)

Procedure:

(1) Place one drop of sample and one drop of distilled water (for blank) on a white spot plate.

(2) To each drop add one drop of Diphenylcarbazide Indicator and stir with a clean stirring rod.

(3) To each drop add one drop of Acetic Acid Buffer (M-39) and stir with a clean sitrring rod. The sample spot will turn pink to violet depending upon the chromic acid concentration. If no chromic is present, the sample spot will turn yellow. The blank spot will also turn yellow.

(4) If the sample is alkaline, the addition of the Indicator may result in a strong pink-violet color. However, if with continued additions of acetic acid, the sample turns yellow, no chromic acid is present. If the pink-violet color remains, chromic acid is present.

*NOTE: If DPC Indicator is furnished as powder in small jar rather than in ampoule, use 1/2 "V" measuring spoon which equals 0.25G.

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TEST PROCEDURE SERIES

TEST: SODIUM HYDROSULFITE SPOT TEST. TEST PROCEDURE: WCP-HST

SPECIFICATIONS:

Type-----------------------------------Quantitative
Color at End Point---------------------Violet

REAGENTS:

1. Chromic Acid Solution (10.0 g/liter CrO_3)

2. Diphenylcarbazide Indicator 1% (Dissolve contents (0.25 g.) of one ampoule of Diphenylcarbazide in 25 ml C.P. Acetone).

3. Acetic Acid Buffer: 6 g. Sodium Acetate, 30 ml Glacial Acetic Acid and 75 ml water.

PROCEDURE:

1. Using a pipet or 100 ml graduated cylinder, transfer 100 ml sample of the treatment solution into a 250 ml beaker and heat to 140-160 F.

2. Place one drop of solution on a clean white spot plate.

3. Add one drop of diphenylcarbazide indicator and stir with a clean stirring rod. The sample spot will be orange red due to the alkalinity of the treatment solution.

4. Add one drop acetic acid buffer solution to the sample spot and again stir with the stirring rod. The mixture will be the color of the original sample after one minute if sodium hydrosulfite is present. If hexavalent chromium is present, the spot will turn pink to violet.

5. To determine the excess sodium hydrosulfite present in the sample, add 3 drops of chromic acid solution to the hot sample, mix and retest as in Steps 2 through 4. Continue the procedure of adding 3 drops of chromic acid to the sample and checking for the hexavalent chromium until a positive test is obtained. Record the number times the 3 drop increment was added to the hot sample.

CALCULATIONS:

Each 3 drops of chromic acid added is equivalent to approximately 50 ppm sodium hydrosulfite; therefore,

No. of 3 drop increments x 50 = ppm $Na_2S_2O_4$ excess

Rev. Dec. 1968

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TEST PROCEDURE SERIES

TEST: CYANIDE SPOT TEST TEST PROCEDURE WCN-ST

SPECIFICATIONS:

Type----------------------------------Qualitative
Limit of Identification-----------1 ppm CN-
Color--------------------------------Orange-Pink

REAGENTS:

(N32) Saturated Bromine Water (3ml Bromine/100 ml water).

(N33) 1.5% Sodium Arsenite (1.5 g Sodium Arsenite/100 ml water).

(N34) Pyridine Reagent (25 ml Pyridine and 2 ml concentrated Hydrochloric Acid/100 ml water).

(N35) 2% Benzidine Hydrochloride (2 g Benzidine Hydrochloride/100 ml water).

(N34-35) Mixed Reagent (5 ml Pyridine Reagent and 2 ml 2% Benzidine Hydrochloride). Prepare fresh every three days.

Note: Distilled water should be used for reagent preparation. Reagents as furnished with test sets require no further dilution

PROCEDURE:

(1) Place one drop of sample and one drop of distilled water (for blank) on a white spot plate.

(2) To each drop add one drop of Saturated Bromine Water; stir with a clean stirring rod; and allow to stand for one minute.

(3) To each drop add two drops of 1.5% Sodium Arsenite and stir with a clean stirring rod. The orange color of the Bromine will now disappear.

(4) To each drop add one drop of Mixed Reagent and stir with a clean stirring rod. The sample spot will turn pale orange-pink to red depending upon the cyanide concentration. If no cyanide is present, the sample spot will remain color less. The blank spot will also remain colorless.

Note: 1. Bromine will evaporate unless solution is well stoppered. To insure a saturated solution, excess free bromine should be always present on the bottom of a reagent solution. Bromine fumes will oxidize the benzidine indicator to a blue color; therefore, keep the bromine reagent and the spot plate under the exhaust hood until the sodium arsenite is added.

Note 2: If the solution to be checked is alkaline, pH greater than 10, neutralize a portion of the solution using Procedure WCN-STM attached.

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TEST PROCEDURE SERIES

TEST: AVAILABLE CHLORINE TITRATION (STARCH IODIDE METHOD) TEST PROCEDURE WCN-CTSI

SPECIFICATIONS:

Type------------------------------------Quantitative
Limit of Identification-------------None
Color at End Point------------------Colorless

REAGENTS:

1. 10% Potassium Iodide (10 g Potassium Iodide/100 ml water)

2. A. Starch Solution (dissolve 5 g soluble starch in cold water; dilute to 1000 ml, then boil for a few minutes). Keep in glass-stoppered bottle; or

   B. Thyodene Indicator

   Either Indicator A (Starch Solution) or Indicator B (Thyodene) may be used.

3. 0.10 N Sodium Thiosulfate

4. Acetic Acid Buffer - 6 g sodium acetate, 30 ml glacial acetic acid and 75 ml water

Note: Distilled water should be used for reagent preparation.

PROCEDURE:

(1) Using a pipette, transfer a 10 ml sample into a 250 ml Erlenmeyer flask. Add 90 ml of distilled water to dilute sample 1:10.

(2) Add 5 ml of the acetic acid buffer solution.

(3) Add 15 ml of 10% Potassium Iodide solution and 2-3 ml of start solution, or 0.5 g Thyodene (one pinch). The sample should turn deep blue upon the addition of the starch of Thyodene if free chlorine is present.

(4) Swirling the flask to provide constant mixing, titrate with 0.10 N Sodium Thiosulfate solution until the blue color completely disappear. For the titration use a micro buret such as Kimax No. 150 with 63 sec. tip and solution reservoir or equivalent.

CALCULATIONS:

_______ ml Sodium Thiosulfate x 354.6 = _____ ppm available chlorine.

__ ML Sodium Thiosulfate x 354.5 = ppm CL_2

ML	ppm	ML	ppm	ML	ppm
0.0	–	4.6	1630.7	9.2	3261.4
0.1	35.4	4.7	1666.2	9.3	3296.9
0.2	71.0	4.8	1701.6	9.4	3332.3
0.3	106.4	4.9	1737.1	9.5	3367.8
0.4	141.8	5.0	1772.	9.6	3403.2
0.5	177.3	5.1	1807.9	9.7	3438.7
0.6	212.7	5.2	1843.2	9.8	3474.1
0.7	248.2	5.3	1878.9	9.9	3509.6
0.8	283.6	5.4	1914.3	10.0	3545.
0.9	319.1	5.5	1949.8	10.1	3580.5
1.0	354.	5.6	1985.2	10.2	3615.9
1.1	390.0	5.7	2020.7	10.3	3651.4
1.2	425.4	5.8	2056.1	10.4	3686.8
1.3	460.9	5.9	2091.6	10.5	3722.3
1.4	496.3	6.0	2127.	10.6	3757.7
1.5	531.8	6.1	2162.5	10.7	3793.2
1.6	567.2	6.2	2197.9	10.8	3828.6
1.7	602.7	6.3	2233.4	10.9	3864.1
1.8	638.1	6.4	2268.8	11.0	3899.
1.9	673.6	6.5	2304.3	11.1	3935.0
2.0	709.	6.6	2339.7	11.2	3970.4
2.1	744.5	6.7	2375.2	11.3	4005.9
2.2	779.9	6.8	2410.6	11.4	4041.3
2.3	815.4	6.9	2446.1	11.5	4076.7
2.4	850.8	7.0	2481.	11.6	4112.2
2.5	886.3	7.1	2516.9	11.7	4147.7
2.6	921.7	7.2	2552.4	11.8	4183.1
2.7	957.2	7.3	2587.9	11.9	4218.6
2.8	992.6	7.4	2623.3		
2.9	1028.1	7.5	2658.6		
3.0	1063.	7.6	2694.2		
3.1	1099.	7.7	2729.7		
3.2	1134.4	7.8	2765.1		
3.3	1169.9	7.9	2800.6		
3.4	1205.3	8.0	2836.		
3.5	1240.8	8.1	2871.5		
3.6	1276.2	8.2	2906.9		
3.7	1311.7	8.3	2942.4		
3.8	1347.1	8.4	2977.8		
3.9	1382.5	8.5	3013.3		
4.0	1418.	8.6	3048.7		
4.1	1453.5	8.7	3084.2		
4.2	1478.9	8.8	3119.6		
4.3	1524.4	8.9	3155.1		
4.4	1559.8	9.0	3190.		
4.5	1595.3	9.1	3226.		

STATE OF NEW YORK MARTIN JR. NO. 33734 PROFESSIONAL ENGINEER

LANCY LABORATORIES, INC.

FOR THE USE OF NARROW RANGE PH PAPER 11.9-13.1 WITH CHLORINATED WASTE TREATMENT SOLUTION

WCN-pH

1. Add one dripper-full (approximately 1 ml) of 2N Sodium Thiosulfate (500 g/l) solution to approximately 100 ml sample of cyanide treatment solution. Stir.

2. Dip pH paper into silution for 2-3 seconds and compare color.

   (paper reads 0.4 units lower than electrometric pH reading)

   NOTE: If the chlorine concentration is more than 3,000 ppm, add a second dropper (1 ml) of the thiosulfate solution, and if the chlorine concentration is more than 5,000 ppm, a third dropper-full may be needed.

12/4/69

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TEST PROCEDURE SERIES

TEST: AVAILABLE CHLORINE INDICATOR PAPER TEST — TEST PROCEDURE WCN-CIP

SPECIFICATIONS:

Type-----------------------------------Quantitative Approximation
Limit of Identification---------------None
Color----------------------------------Purple

REAGENTS:

1. Chlorine Test Paper (low pH potassium iodide-starch)

PROCEDURE:

Place a drop of the sample to be tested on a piece of chlorine test (low pH potassium iodide-starch) paper and observe the color of the wetted portion of the paper.

The color will be pinkish-blue at an available chlorine concentration of approximately 15 ppm or less, increasing to a deep purple as the concentration approaches 200 ppm and above. Above 500 ppm, however, while the wetted spot will be a lighter purple surrounded by a bleached white ring, the outer periphery of the wetted portion of the paper will show a dark purple.

For closer approximation of the chlorine content of the sample at these higher concentrations, dilute the sample 1:10 and retest. If the bleached white ring around the wetted spot appears again, the chlorine concentration is high (approximately 2,500 ppm).

If the wetted portion of the paper turns purple, the approximate available chlorine concentration must be determined by diluting the sample and retesting. For example: a sample which gives a pinkish-blue color after being diluted 20:1 has an available chlorine concentration of approximately (20 x 15) 300 ppm.

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TEST PROCEDURE SERIES

TEST: SODIUM HYDROSULFITE INDICATOR PAPER TEST — TEST PROCEDURE WCR-HIP

SPECIFICATIONS:

Type. . . . . Quantitative Approximation
Limit of Indentification. . . . 50-1000 ppm Sodium Hydrosulfite
Color. . . . . Purple - White

REAGENTS:

1. 200 ppm Chlorine Water (4 ml 5% Sodium Hypochlorite (Chlorox)/1000 ml water).

2. Chlorine Test (Starch Iodide) paper

Note: Distilled water should be used for reagent preparation.

PROCEDURE:

(1) Dip the end of a piece of chlorine test (Starch Iodide) paper into the 200 ppm Chlorine water. The wetted portion of the paper will turn purple.

(2) Remove the paper from the Chlorine Water and dip the wetted (purple) portion into the sample to be tested. Observe the time required to bleach the purple color from the paper.

The concentration of Sodium Hydrosulfite is approximated by the time required for the purple color to disappear.

3 - 5 seconds =	1,000 ppm Sodium Hydrosulfite
5 -10 seconds =	500 ppm Sodium Hydrosulfite
25 seconds =	100 ppm Sodium Hydrosulfite
60 seconds =	50 ppm Sodium Hydrosulfite

STATE OF NEW YORK
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PRELIMINARY REPORT OF INDUSTRIAL WASTES
NASSAU COUNTY HEALTH DEPARTMENT

DATE:

Name of Company Metallurgical Processing Corp.

Present location 1?? Michael Dr. Syosset   Tel.No. WA 1-6???

Information Supplied by L. Perlman   No. of Employees 50

Operations started 1960

Waste disposal methods Cesspool / Diffusion well inc   Separate from sanitary Yes

Processes employed [illegible] Treating

PROCEDURES:

1. Chemicals used [illegible] acid (Ultrex 10?)

2. Step by step procedure ② Ultrex 106 - ③ Cold water rinse (three tanks) ① Hot water rinse ④ Rust preventive oil

3. Volume and No. of tanks or vats and conc. of chemicals ① Ultrex 105 (Inhibitor Hydrochloric acid) 3 Cold Water Rinse 1 Hot Water Rinse 1 Rust preventive oil

4. Dumping of vats (frequency) —

5. Water Supply ______ Public ✓ Private ______ Consumption ______

Waste Disposal Systems Difussion well for metal treatment
(describe - use reverse side for sketch)

Solids or sludge disposal —

Chemical ananlysis of wastes
(composite waste, if possible)

Remarks

E.H. 41-8/63

J. Marcella

APPENDIX P

NOVEMBER 9, 1995 GROUNDWATER SAMPLING RESULTS MEMO

MEMORANDUM

TO: Theresa Heneveld, P.E., Lockwood, Kessler & Bartlett, Inc.

FROM: Michael Wolfert, Geraghty & Miller, Inc. MW

DATE: November 9, 1995

SUBJECT: Groundwater Sampling Results from the Syosset Landfill and Conclusions Regarding Off-Site Groundwater Conditions

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Attached to this memo is Table 1 that summarizes the groundwater sampling results from the two OU-2 RI sampling rounds in November and December 1993 and the supplemental partial sampling round in July 1995. Seven wells (not all wells) were sampled for volatile organic compounds (VOCs) during the July supplemental round as explained in our May 31, 1995 letter and, therefore, only volatile results from the November and December 1993 rounds for the same seven wells are presented for comparison. The same sampling and analytical protocols were followed for all three sampling rounds.

Review of the data in Table 1 indicates that total VOC concentrations remained essentially the same during all three sampling rounds with most of the same compounds showing up each time at approximately the same concentrations.

Furthermore, review of Table 1 shows that the total VOC concentration in Well RW-12I during July 1995 was very similar to the total VOC concentration in this well in December 1993. Although the July and December totals are higher than the November concentration, during each of the three sampling rounds essentially the same compounds are present and make up the same percentage of the total each time. Moreover, in Well RW-12I, in all three rounds, tetrachloroethene had the highest concentration of any individual compound and made up approximately 47 percent of the total, while 1,1,1-trichloroethane was the compound with the next highest concentration, making up about 26 percent of the total.

Based on these three sampling rounds, neither an upward or downward trend in total VOCs is evident in Well RW-12I. The consistency of constituent concentrations in Well RW-12I over the 20-month period between the first and third samplings suggests that either the source(s) of these constituents to groundwater may still be active or that the mass of constituents in the aquifer is sufficient, combined with the relatively flat horizontal hydraulic gradient and correspondingly slow groundwater velocity, to preclude any short-term decrease in constituent levels in Well RW-12I.

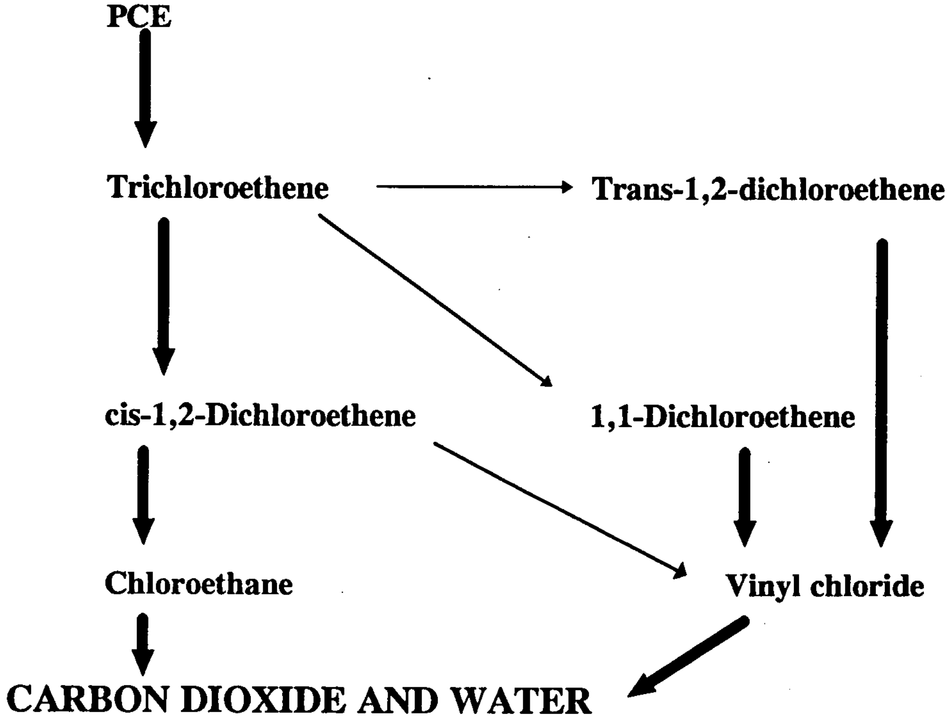
Now that three rounds of data are available for both on-site and off-site wells, a detailed review and evaluation of the data for upgradient and on-site versus off-site wells was undertaken. For the three sampling rounds (November and December 1993 and July 1995), six results are available for upgradient wells, 22 results are available for on-site wells, and 26 results for off-site wells; this includes replicate results.

Tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA), the two most prominent compounds in Well RW-12I, are known to breakdown (degrade) in the environment to other chlorinated compounds, and if conditions are right and enough time passes, these breakdown products will eventually be converted to carbon dioxide and water.

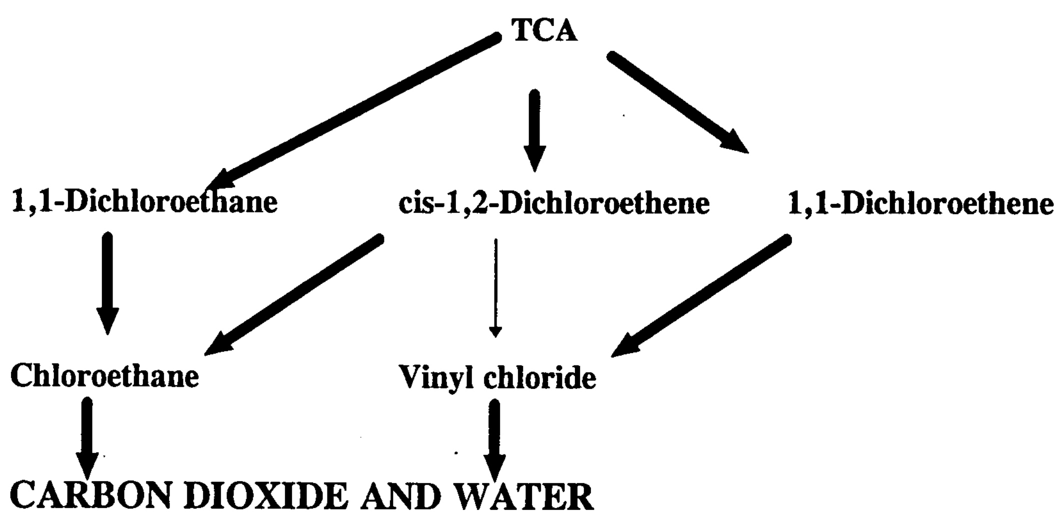
Laboratory studies have been conducted to determine what the breakdown end products will be and also the rate of degradation. Because field conditions cannot be accurately reproduced in the laboratory, laboratory degradation rates cannot be confidently transferred to the field and, generally speaking, field degradation rates tend to be slower than laboratory-derived ones.

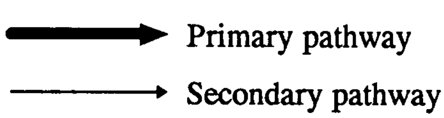
Based on an article in the July/August 1990 edition of the journal HMC by Olsen and Davis entitled, "Predicting the Fate and Transport of Organic Compounds in Groundwater, Part II," the degradation pathways and breakdown and end products for PCE and TCA are given below.

PCE


PCE
Trichloroethene
Trans-1,2-dichloroethene
cis-1,2-Dichloroethene
1,1-Dichloroethene
Chloroethane
Vinyl chloride
CARBON DIOXIDE AND WATER

TCA


TCA
1,1-Dichloroethane
cis-1,2-Dichloroethene
1,1-Dichloroethene
Chloroethane
Vinyl chloride
CARBON DIOXIDE AND WATER


Primary pathway
Secondary pathway

Generally speaking, all else being equal, the more degradation products and the less parent compounds (PCE and TCA) present, the older the contamination is. For example, assume two plumes of contaminated groundwater exist side by side in the same hydrogeologic environment, have or had similar sources, and each plume was made up entirely of PCE and its degradation products. If plume "A" consisted of 95 percent PCE and 5 percent breakdown products while plume "B" contained 10 percent PCE and 90 percent breakdown products, it would be logical to conclude that plume "B" and its source were older. This conclusion would be based on the fact that given similar environments and source contribution, the plume with the greater percentage of breakdown products would have had to exist longer (and, likewise, its source) to allow the degradation process to proceed further.

With the above concept in mind, the average concentration of PCE, TCA, and their breakdown products was calculated. Data from the November and December 1993 and July 1995 sampling rounds were used in determining averages. Table 2 shows average total VOC concentrations per well for the three rounds in addition to average PCE, TCA, and total breakdown products concentrations. The table also has a calculated ratio for each well of total breakdown products over the sum of PCE and TCA. All data from all three rounds was used, including replicates, to obtain the broadest database per well. Wells that had neither PCE/TCA or their breakdown products were excluded from the table as they would provide no information relative to age of contaminants. Furthermore, wells with less than one part per billion total VOCs were excluded from the table because with concentrations near or actually below the method detection limit, slight inaccuracies in VOC concentration could significantly affect calculated ratios.

Ratios of substantially less than one means more PCE/TCA exists than breakdown products indicating little degradation (relatively speaking) has taken place. A ratio of one means equal amounts of PCE/TCA versus breakdown products, while a ratio well in excess of one means degradation has progressed relatively far. The higher the ratio, all else being equal, the older the contaminants.

Review of Table 2 shows that there is a wide range of ratios in upgradient/on-site wells; 0.2 to infinity, as well as in off-site wells; 0.3 to 8.0. Averaging ratios for on-site wells yields a value of 2.7, while the median value is 2.6. For off-site wells, the average value, excluding Well RW-12I, is 4.1 with a median value of 3.8. These numbers indicate that the makeup of the contamination profile is dominated by breakdown products. Well RW-12I, however, has an average ratio of 0.3 indicating a profile dominated by parent compounds as opposed to breakdown products. These numbers suggest that the contaminant mix at Well RW-12I may be derived from a different source than the other off-site wells as degradation has not progressed as far as in the other off-site wells.

Conclusions

The July 1995 sampling round was performed to obtain additional groundwater quality data to supplement the findings of the Syosset Landfill OU2 RI Report and the Industrial Survey (Geraghty & Miller, Inc., July 13, 1995) in order to formulate a conclusion regarding off-site groundwater quality conditions. The following paragraphs summarize the conclusions developed based on the available data gathered to date.

1) Water-quality data for Cluster 11 show that typical landfill leachate indicator parameters are present at this cluster, even though it is considerably outside the easternmost limiting flow line from the landfill. While volatile organics detected in this cluster may be landfill derived, they are consistent with regional background groundwater quality deterioration.

2) Water-quality data for Cluster 10, which is directly downgradient of the landfill, show typical landfill leachate indicator parameters are present at this cluster. While volatile organics at this cluster may be landfill derived, they are consistent with regional background groundwater quality deterioration.

3) Water-quality data for Cluster 12 show that typical landfill leachate indicator parameters are present at this cluster, which is approximately at the westernmost limiting flow line from the landfill. While volatile organics in Well RW-12D may be landfill derived, the concentrations here are also consistent with regional background groundwater quality deterioration. Volatile organics in Well RW-12I appear to be from a source other than the landfill. This is based on an assessment of available information gathered as part of the OU1 RI and OU2 RI, including on-site and off-site groundwater quality data, Industrial Survey data, regional hydrogeological data, and soil boring data obtained during the OU1 RI. This conclusion is based on the following:

- The elevated concentrations of PCE and TCA in Well RW-12I do not appear to be from the landfill and may be caused by a more recent or currently active source since the ratio of breakdown products versus PCE and TCA at Well RW-12I show a mix dominated by parent compounds not breakdown products, which is the converse of other off-site wells and the fact that volatile organics are nearly 10 times higher in Well RW-12I than on-site, not what would be expected if the landfill was the source. Furthermore, the concentrations of leachate indicator parameters in Wells RW-12I and RW-12D are very similar, while volatile organics in Well RW-12I are nearly 10 times greater than in Well RW-12D. This disparity between volatile organic compounds and leachate concentrations suggests that the volatile organic compounds in Well RW-12I are due to a source other than the landfill.

- The industrial area survey (Geraghty & Miller memo of July 13, 1995) identified five off-site properties which are potential sources of the volatile organic compounds detected in Well RW-12I. These properties are located on Robbins Lane and Aerial Way, between 1,400 and 2,100 feet southwest of Well RW-12I. Each of these properties used one or more of the volatile compounds detected in Well RW-12I, and two, Space Machine Corp. and Spiegel Associates, had releases which required soil remediation. In addition, these properties likely discharged wastewater to on-site septic systems and leaching fields prior to the construction of sewers in the 1980s. It is therefore reasonable to expect that releases of volatile organic compounds to groundwater have occurred at one or more of these properties.

- Regional hydrogeologic data indicate that the potential off-site sources identified in the industrial area survey are located hydraulically upgradient of Well RW-12I, and are situated between the well and the regional groundwater divide. Specifically, the regional horizontal flow direction for the Magothy Aquifer in the vicinity of the Syosset Landfill is northeast, and the regional groundwater divide is located approximately 3,100 feet south of Well RW-12I and is oriented west to east (Figure 3-3 of OU2 RI Report). Moreover, because the vertical gradient is 3 to 5 times the horizontal gradient (Section 3.1.4 of OU2 RI Report) in the vicinity of the landfill, releases from these potential off-site sources could migrate to the intermediate zone of the Magothy Aquifer at Well RW-12I.

- Data from on-site soil borings and monitoring wells indicate that the landfill is not the source of the elevated levels of volatile organic compounds detected in Well RW-12I. Specifically, if the landfill was the source of these VOCs, it is expected that substantial residual contamination would be present. Instead, these VOCs (specifically PCE, TCA, TCE, 1,1-DCE, and 1,1-DCA) were only detected at low concentrations (5 to 9 ppb) in three of 44 samples from 10 soil borings, including samples of the fill and the soil directly underlying the landfill (Tables 16 and 17 of OU1 RI Report). Similarly, these VOCs were only detected at low concentrations (0.1J to 30 ppb) in 27 of 56 groundwater samples from 16 on-site monitoring wells (Table 9 of OU1 RI Report, Table 1 of OU2 RI Report, and Table 1 of this memo).

In summary, we can conclude that: based on the lack of degradation of PCE and TCA in Well RW-12I; the identification of properties within the previously unsewered Industrial Park who used and/or are using PCE and TCA and have had reported releases; regional hydrogeologic data indicating the Industrial Park is upgradient of Well RW-12I; and the low levels of these compounds found on-site in both the soil and groundwater during the OU1 RI; the high concentrations of volatile organic compounds (particularly PCE and TCA) in Well RW-12I appear to be from a source(s) located in the Industrial Park west of the LIRR tracks.

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Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During the Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	SY-3D	SY-3D	SY-3D	SY-8	SY-8
Sample Date:	11/2/93	12/3/93	7/28/95	11/4/93	12/1/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1	<1	<1	<1 J	<1
Chloromethane	<1	<1	<1	<1	<1
Vinyl chloride	0.6 J	0.6 J	<1	<1	<1
Bromomethane	<1	<1	<1	<1 J	<1
Chloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1 J	<1	<1
Acetone	<17 J	<21	<5	<10 J	<18 J
Carbon disulfide	<1	<1	<1	<1	<1
Methylene chloride	<2	<2	<2	<2.2	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	1.5	1.6	0.91 J	1.3	1.2
2-Butanone	R	R	<5	R	R
cis-1,2-Dichloroethene	0.7 J	0.6 J	<1	1.1	0.4 J
Chloroform	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	0.8 J	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	1.8	1.8	1.4	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
Trichloroethene	0.9 J	0.9 J	<1	2.8	1.5
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	R	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
Toluene	0.4 J	0.2 J	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	17	10
2-Hexanone	<5	R	<5	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	5.5	5.4	5.1	0.1 J	<1
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	0.1 J	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Total VOCs:	11.4	11.1	7.41	23.2	13.1

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	SY-8	PK-10S	PK-10S	PK-10S	PK-10I
Sample Date:	7/28/95	11/4/93	12/1/93	7/28/95	11/4/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1	<1 J	0.2 J	<1	<1 J
Chloromethane	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	0.7 J
Bromomethane	<1	<1 J	<1	<1	<1 J
Chloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	0.8 J	0.9 J	<1	0.5 J
Acetone	<5	<14 J	<18 J	<5	<29 J
Carbon disulfide	<1	<1	<1	<1	<1
Methylene chloride	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	0.87 J	5.4	6.7	3.2	6.6
2-Butanone	<5	R	R	<5	R
cis-1,2-Dichloroethene	<1	<1	<1	<1	2.7
Chloroform	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	2.5	3.3	1.8	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	0.5 J
1,2-Dichloroethane	<1	<1	<1	<1	<1
Trichloroethene	0.97 J	0.5 J	0.7 J	<1	1.2
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	R	<1	<1	R	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
Toluene	<1	0.3 J	0.8 J	<1	0.3 J
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	17	1.3	1.3	1.1	3.3
2-Hexanone	<5	<5	R	<5	<5
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	20
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Total VOCs:	18.84	10.8	13.9	6.1	35.8

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

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Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	PK-10I (Rep-2)	PK-10I	PK-10I (Rep-2)	PK-10I	PK-10D
Sample Date:	11/4/93	12/1/93	12/1/93	7/28/95	11/4/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1 J	<1	0.2 J	<1	<1 J
Chloromethane	<1	<1	<1	<1	<1
Vinyl chloride	0.8 J	0.6 J	0.7 J	<1	<1
Bromomethane	<1 J	<1	<1	<1	<1 J
Chloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	0.2 J	<1	<1
Acetone	<26 J	<23 J	<30 J	<5	<16 J
Carbon disulfide	<1	<1	<1	<1	<1
Methylene chloride	<2	<2	<2	<2	<2
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	6.3	5.4	5.6	4.5	0.4 J
2-Butanone	R	R	R	<5	R
cis-1,2-Dichloroethene	2.5	1.3	1.4	2.2	0.4 J
Chloroform	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	0.5 J	<1	<1	0.34 J	0.4 J
1,2-Dichloroethane	<1	<1	<1	<1	<1
Trichloroethene	1.2	0.9 J	0.9 J	1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	R	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<1	<5	<5
Toluene	<1	0.8 J	1.0	<1	0.7 J
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	3.3	1.4	1.5	3.1	<1
2-Hexanone	<5	R	R	<5	<5
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	17	5.2	5.3	20	<1
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Total VOCs:	31.6	15.6	16.8	31.14	1.9

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	PK-10D	PK-10D	RW-12I	RW-12I (Rep-3)	RW-12I
Sample Date:	12/1/93	7/28/95	11/5/93	11/5/93	12/2/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1	<1	<2	<2	<5
Chloromethane	<1	<1	<2	<2	<5
Vinyl chloride	<1	<1	<2	<2	0.6 J
Bromomethane	<1	<1	<2	<2	<5
Chloroethane	<1	<1	<2	<2	<5
1,1-Dichloroethene	<1	<1	13	15	26
Acetone	<25 J	<5	R	R	<130 J
Carbon disulfide	<1	<1	<2 J	<2 J	<5 J
Methylene chloride	<2	<2	<2	<4	<10
trans-1,2-Dichloroethene	<1	<1	<2	<2	<5
1,1-Dichloroethane	0.5 J	0.37 J	11	13	17
2-Butanone	R	<5	R	R	R
cis-1,2-Dichloroethene	0.3 J	0.39 J	5.2	5.7	5.7
Chloroform	<1	<1	<2	<2	<5
1,1,1-Trichloroethane	<1	<1	40	40	75
Carbon tetrachloride	<1	<1	<2	<2	<5
Benzene	<1	<1	<2	<2	0.5 J
1,2-Dichloroethane	<1	<1	<2	<2	<5
Trichloroethene	<1	<1	6.2	6.3	9.8
1,2-Dichloropropane	<1	<1	<2	<2	<5
Bromodichloromethane	<1	<1	<2	<2	<5
2-Chloroethylvinylether	<1	R	<2 J	<2 J	<5
cis-1,3-Dichloropropene	<1	<1	<2	<2	<5
4-Methyl-2-pentanone	<5	<5	<10	<10	<25
Toluene	5.7	<1	<2	<2	13
trans-1,3-Dichloropropene	<1	<1	<2	<2	<5
1,1,2-Trichloroethane	<1	<1	<2	<2	<5
Tetrachloroethene	<1	0.25 J	68	71	110
2-Hexanone	R	<5	R	R	R
Dibromochloromethane	<1	<1	<2	<2	<5
Chlorobenzene	<1	<1	1.1 J	1.3 J	0.9 J
Ethylbenzene	<1	<1	<2	<2	<5
meta and/or para-Xylene	<1	<1	<2	<2	<5
ortho-Xylene	<1	<1	<2	<2	<5
Styrene	<1	<1	<2	<2	<5
Bromoform	<1	<1	<2	<2	<5
Trichlorofluoromethane	<1	<1	<2	<2	1.2 J
1,1,2,2-Tetrachloroethane	<1	<1	<2	<2	<5
Total VOCs:	6.5	1.01	144.5	152.3	259.7

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	RW-12I (Rep-3)	RW-12I	RW-12I Rep-1	RW-12D	RW-12D
Sample Date:	12/2/93	7/27/95	7/27/95	11/5/93	12/2/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<5	<10	<10	<1	<1
Chloromethane	<5	<10	<10	<1	<1
Vinyl chloride	<5	<10	<10	9.2	17
Bromomethane	<5	<10	<10	<1	<1 J
Chloroethane	<5	<10	<10	<1	<1 J
1,1-Dichloroethene	27	31	28	<1	<1
Acetone	<130 J	<50	<50	<29 J	<21 J
Carbon disulfide	<5 J	<10	<10	<1 J	<1 J
Methylene chloride	<12	<20	<20	<2	<2
trans-1,2-Dichloroethene	<5	<10	<10	<1	<1
1,1-Dichloroethane	17	14	13	<1	0.3 J
2-Butanone	R	<50	<50	R	R
cis-1,2-Dichloroethene	5.9	6 J	<10	2.6	2.3
Chloroform	<5	22	17	<1.3	<1.4
1,1,1-Trichloroethane	75	64	56	<1	<1
Carbon tetrachloride	<5	<10	<10	<1	<1
Benzene	0.5 J	<10	<10	0.4 J	0.9 J
1,2-Dichloroethane	<5	<10	<10	<1	<1.8
Trichloroethene	9.9	7.1 J	6 J	0.9 J	1.1
1,2-Dichloropropane	<5	<10	<10	<1	1.0
Bromodichloromethane	<5	3 J	<10	<1	<1
2-Chloroethylvinylether	<5	R	R	<1 J	<1
cis-1,3-Dichloropropene	<5	<10	<10	<1	<1
4-Methyl-2-pentanone	<25	<50	<50	<5	<5
Toluene	12	<10	<10	0.7 J	6.6
trans-1,3-Dichloropropene	<5	<10	<10	<1	<1
1,1,2-Trichloroethane	<5	<10	<10	<1	<1
Tetrachloroethene	110	150	140	2.6	2.4
2-Hexanone	R	<50	<50	R	R
Dibromochloromethane	<5	<10	<10	<1	<1
Chlorobenzene	0.9 J	<10	<10	<1	0.3 J
Ethylbenzene	<5	<10	<10	<1	<1
meta and/or para-Xylene	<5	<10	<10	<1	<1
ortho-Xylene	<5	<10	<10	<1	<1
Styrene	<5	<10	<10	<1	<1
Bromoform	<5	<10	<10	<1	<1
Trichlorofluoromethane	1.2 J	<10	<10	<1	<1
1,1,2,2-Tetrachloroethane	<5	<10	<10	<1	<1
Total VOCs:	259.4	297.1	260	16.4	31.9

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

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Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	RW-12D	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample Date:	7/27/95	11/2/93	11/4/93	11/5/93	12/1/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1	<1	<1 J	<1 J	<1
Chloromethane	<1	<1 J	<1	<1	<1
Vinyl chloride	12	<1	<1	<1	<1
Bromomethane	<1	<1 J	<1 J	<1	<1
Chloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
Acetone	<5	34 JB	14 J	35 J	14 JB
Carbon disulfide	<1	<1	<1	<1	<1
Methylene chloride	<2	1 JB	0.4 JB	0.5 JB	0.8 JB
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
2-Butanone	<5	R	R	R	R
cis-1,2-Dichloroethene	2.9	<1	<1	<1	<1
Chloroform	<1.5	1.1	1.0 B	0.8 JB	1.0 B
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
Trichloroethene	1.1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	R	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
Toluene	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	3	<1	<1	<1	<1
2-Hexanone	<5	R	<5	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	0.47 J	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1 J	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Total VOCs:	20.47	36.1	15.4	36.3	15.8

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

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Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Field Blank
Sample Date:	12/2/93	12/3/93	7/27/95	7/28/95	11/2/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1 J
Vinyl chloride	<1	<1	<1	<1	<1
Bromomethane	<1 J	<1	<1	<1	<1 J
Chloroethane	<1 J	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
Acetone	24 J	50 JB	<5	<5	21 JB
Carbon disulfide	<1 J	<1	<1	<1	<1
Methylene chloride	0.7 JB	0.7 JB	<2	0.22 J	0.8 JB
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
2-Butanone	R	R	<5	<5	R
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1
Chloroform	0.9 JB	0.9 JB	<1	0.86 J	1.1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1
1,2-Dichloroethane	0.8 J	1.5	<1	<1	0.4 J
Trichloroethene	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	R	R	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
Toluene	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1
2-Hexanone	R	R	<5	<5	R
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Total VOCs:	26.4	53.1	0	1.08	23.3

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Sample ID:	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank
Sample Date:	11/4/93	11/5/93	12/1/93	12/2/93	12/3/93
Parameter (concentrations in ug/L)					
Dichlorodifluoromethane	1.0 J	<1 J	<1	<1	<1
Chloromethane	0.4 J	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1
Bromomethane	<1 J	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
Acetone	55 J	29 J	31 JB	34 JB	34 JB
Carbon disulfide	<1	<1	<1	<1	<1
Methylene chloride	0.3 JB	0.5 JB	2.1 JB	2.4 JB	2.1 B
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
2-Butanone	R	R	R	R	R
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1
Chloroform	1.2 B	1.0 B	0.8 JB	0.9 JB	0.8 JB
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1
1,2-Dichloroethane	0.4 J	<1	0.8 J	0.5 J	<1
Trichloroethene	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
2-Chloroethylvinylether	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	5.3	<5	<5	<5	<5
Toluene	<1	<1	<1	0.2 J	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1
2-Hexanone	<5	<5	R	R	R
Dibromochloromethane	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
meta and/or para-Xylene	<1	<1	<1	<1	<1
ortho-Xylene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Bromoform	<1	<1 J	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	0.6 J	<1	<1	<1	<1
Total VOCs:	64.2	30.5	34.7	38	36.9

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 1. Concentrations of Volatile Organic Compounds Detected in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Parameter (concentrations in ug/L)	Sample ID: Field Blank Sample Date: 7/27/95	Field Blank 7/28/95
Dichlorodifluoromethane	<1	<1
Chloromethane	<1	<1
Vinyl chloride	<1	<1
Bromomethane	<1	<1
Chloroethane	<1	<1
1,1-Dichloroethene	<1	<1
Acetone	<5	<5
Carbon disulfide	<1	<1
Methylene chloride	0.57 J	0.42 J
trans-1,2-Dichloroethene	<1	<1
1,1-Dichloroethane	<1	<1
2-Butanone	<5	<5
cis-1,2-Dichloroethene	<1	<1
Chloroform	1.9	1.9
1,1,1-Trichloroethane	<1	<1
Carbon tetrachloride	<1	<1
Benzene	<1	<1
1,2-Dichloroethane	1	<1
Trichloroethene	<1	<1
1,2-Dichloropropane	<1	<1
Bromodichloromethane	<1	<1
2-Chloroethylvinylether	R	R
cis-1,3-Dichloropropene	<1	<1
4-Methyl-2-pentanone	<5	<5
Toluene	<1	<1
trans-1,3-Dichloropropene	<1	<1
1,1,2-Trichloroethane	<1	<1
Tetrachloroethene	<1	<1
2-Hexanone	<5	<5
Dibromochloromethane	<1	<1
Chlorobenzene	<1	<1
Ethylbenzene	<1	<1
meta and/or para-Xylene	<1	<1
ortho-Xylene	<1	<1
Styrene	<1	<1
Bromoform	<1	<1
Trichlorofluoromethane	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1
Total VOCs:	**3.47**	**2.32**

ug/L Micrograms per liter.
VOCs Volatile organic compounds.
J Estimated value.
B Compound was also detected in the associated method blank.
R Unusable value.

Table 2. Average PCE, TCA, Total Breakdown Products, and Total Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells During Three Sampling Rounds, Syosset Landfill, Syosset, New York.

Well	PCE, ppb	TCA, ppb	Total Breakdown Products, ppb	Ratio of Total Breakdown Products, ppb / PCE and TCA, pbb	Total VOC's ppb
			Upgradient Well		
SY-4	0.0	0.0	2.8	-	12.3
			On-Site Wells		
SY-1D	2.0	0.0	10.6	5.3	26.6
SY-2D	0.5	1.1	4.2	2.6	6.5
SY-3	0.0	0.0	7.8	-	11.2
SY-3D	0.0	0.0	1.7	-	6.2
SY-8	14.7	0.3	3.4	0.2	18.4
SY-9	0.0	0.0	0.2	-	1.6
			Off-Site Wells		
10S	1.2	2.5	6.1	1.6	10.3
10I	2.5	0.0	9.6	3.8	26.2
10D	0.1	0.0	0.8	8.0	3.1
11I	21.0	4.1	18.9	0.8	47.0
12I	108.3	58.4	49.9	0.3	229.0
12D	2.7	0.0	16.4	6.1	23.0

ppb - Parts per billion
Three sampling rounds - November and December 1993 and July 1995
- Cannot calculate ratio due to zero in denominator